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ABSTRACT

This publication presents information on and strategies for re-engineering schools. Section 1, "School-wide Change," offers guidelines for changing school culture, using block scheduling, making classroom instruction more meaningful, and improving the transition from middle school to high school. Section 2, "Graduation Alternatives," discusses the characteristics of effective alternative programs for students at risk--including schools-within-schools and alternative schools--and strategies for helping students pass the GED exam. The third section, "Integrating Academic and Vocational Education," discusses eliminating the general diploma track, integrating academic and vocational education, providing students with work experiences related to their schools, and ensuring that all students receive adequate counseling as they make educational and career decisions. This document also offers profiles of several high schools in the southeastern United States that are successfully implementing re-engineering initiatives and provides shorter descriptions of other innovative efforts in the region. Appendices contain information on the dropout problem in the Southeast, two proposed schedules for the Copernican Plan, and samples of a parental and a student agreement form. Resources and references are also provided. (LMI)

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REENGINEERING HIGH SCHOOLS FOR STUDENT SUCCESS

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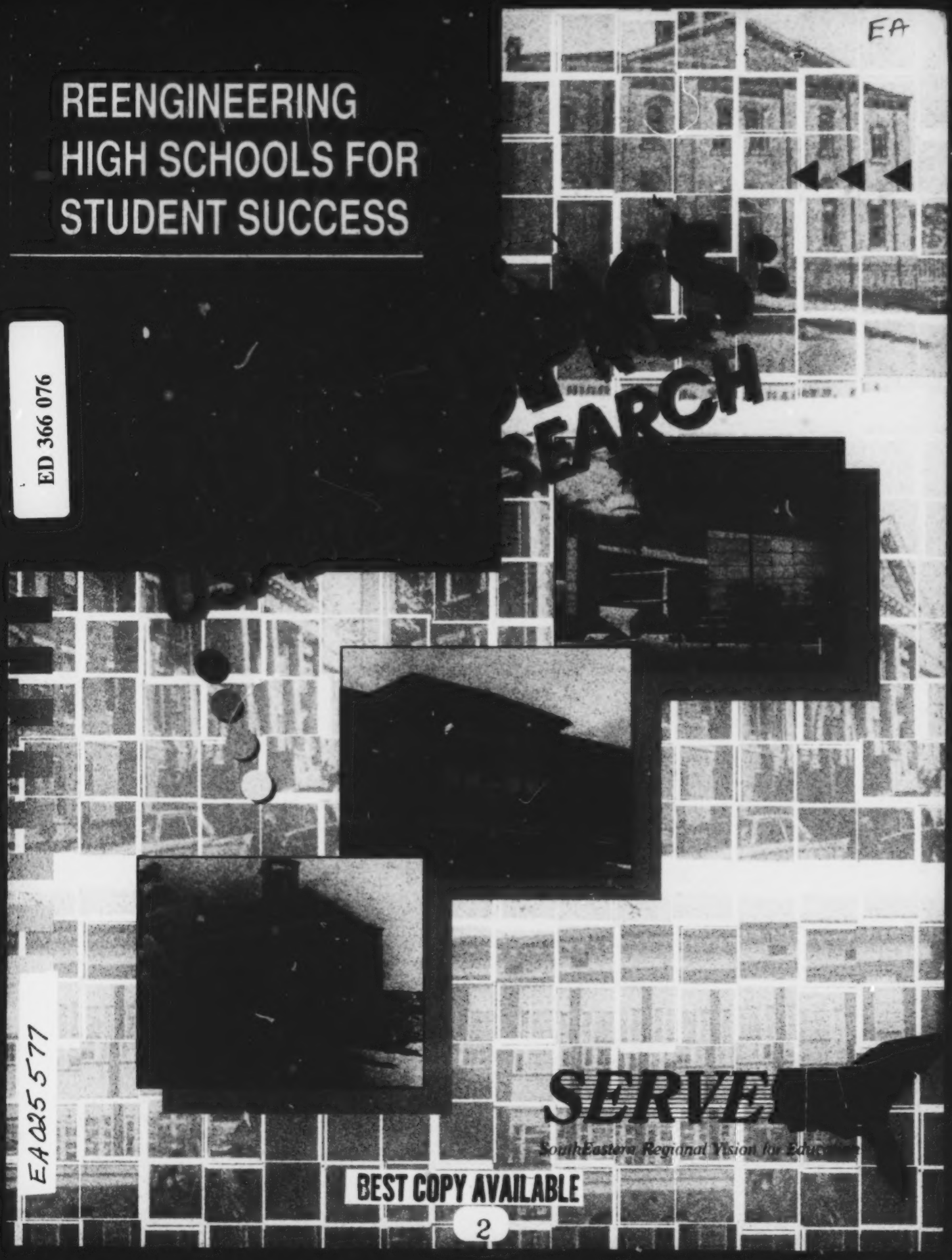

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Hot Topics: Usable Research

REENGINEERING HIGH SCHOOLS FOR STUDENT SUCCESS

Stephanie Kadel
1994

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SouthEastern Regional Vision for Education

School of Education
University of North Carolina at Greensboro

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About SERVE and the Hot Topics Series . . .

SERVE, the SouthEastern Regional Vision for Education, is a coalition of educators, business leaders, governors, and policymakers seeking comprehensive and lasting improvement in education in Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina. The name of the laboratory reflects a commitment to creating a shared vision for the future of education in the Southeast.

The mission of SERVE is to provide leadership, support, and research to assist state and local efforts in improving educational outcomes, especially for at-risk and rural students.

Laboratory goals are to

- address critical issues in the region,
- work as a catalyst for positive change,
- serve as a broker of exemplary research and practice, and
- become an invaluable source of information for individuals working to promote systemic educational improvement.

Each year, SERVE emphasizes one of the national goals established by the President and National Governors' Association. A special project, SERVEing Young Children, focuses on ensuring that all children are ready to begin school.

SERVE offers a series of publications entitled **Hot Topics: Usable Research**. These research-based publications focus on issues of present relevance and importance in education in the region and are practical guidebooks for educators. Each is developed with input from experts in the field; is focused on a well-defined subject; and offers useful information, resources, descriptions of exemplary programs, and a list of contacts.

Several Hot Topics are developed by SERVE each year. The following Hot Topics are presently available:

- Appreciating Differences: Teaching and Learning in a Culturally Diverse Classroom
- Children Exposed to Drugs: Meeting Their Needs
- Comprehensive School Improvement
- Interagency Collaboration: Improving the Delivery of Services to Children and Families
- Problem-Centered Learning in Mathematics and Science
- Reducing School Violence
- Reengineering High Schools for Student Success
- Schools for the 21st Century: New Roles for Teachers and Principals
- Using Technology to Improve Teaching and Learning

To request publications or to join the SERVE mailing list (everyone on the mailing list will receive announcements about laboratory publications), complete the order forms at the back of this publication or contact the SERVE office in Tallahassee (see next page).

SERVE has five offices in the region to better serve the needs of state and local education stakeholders. The contract management and research and development office is located at the School of Education, University of North Carolina at Greensboro. The laboratory's information

office, affiliated with Florida State University, is located in Tallahassee. Field service offices are located in Atlanta, Greensboro, Tallahassee, and on the campus of Delta State University in Cleveland, Mississippi. Addresses are provided below.

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Introduction

This publication is designed to help guide high school educators who are interested in doing more than tinkering to improve the instruction and learning at their schools. To use a term from the business world, high schools need "reengineering" (Hammer & Champy, 1993), and educators' efforts should be driven by the following question:

> If you re-created your high school today (given what you know and the resources and technologies available), how would the re-created school look?

Reengineering is "the fundamental rethinking and radical redesign of . . . processes to achieve dramatic improvements in critical measures of performance, such as cost, quality, service, and speed'" (Hammer & Champy, 1993, p. 32). In making the case for reengineering businesses, Hammer and Champy (1993) advise to "forget what you know about how business should work–most of it is wrong" (p. 4). The same statement might be applied to schools, where reengineering is perhaps even more necessary than in the business community.

This country cannot afford for high schools to continue to do things the same old way; the health of the economy depends on keeping students from dropping out of school. Dropouts cost the country as much as $77 billion a year in lost taxes and public assistance costs, health care, crime, etc. (Beck, 1991). In addition, American businesses spend an estimated $40 billion a year on remedial training for employees (Beck, 1991). Dropouts themselves face a bleak economic future: 70 percent of those who do not complete high school live in poverty; dropouts earn approximately $400,000 less in lifetime income than graduates (Beck, 1991; Florida Department of Education, 1992a). Only 61 percent of people who did not have a high school diploma in 1989 were employed, compared to 78 percent who did (U.S. Bureau of the Census, 1991). Today's young dropouts who are fortunate enough to be employed earn an estimated 42 percent less than dropouts earned 15 years ago (Smith & Ament, 1990). *(See Appendix A for a brief examination of the dropout problem in the Southeast and the ways in which it is measured.)*

Preventing students from dropping out, however, is not enough. High school graduates entering the work force need new skills to obtain well-paying jobs and be productive workers. The Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) spent a year talking with business owners, managers, union officials, and employees in order to determine what the future will require of workers. According to the SCANS report,

> New workers must be creative and responsible problem solvers and have the skills and attitudes on which employers can build. Traditional jobs are changing and new jobs are created every day. High paying but unskilled jobs are disappearing. Employers and employees share the belief that all workplaces must "work smarter." (SCANS, 1991, p. v)

In addition to new skills, more and more students will need to be prepared for postsecondary education in order to enhance their opportunities for economic stability. While projections about

the future labor market emphasize the need for productive workers for jobs that do not require a four-year college degree, over half the jobs created by the year 2000 will require some postsecondary education (Commission on the Skills of the American Workforce, 1990; Florida Department of Education, 1992a; Parnell, 1985). Similarly, high unemployment, especially for workers under 24 years of age, has resulted in inflated educational requirements even for the least technically demanding jobs (Bickel & Papagiannis, 1988). High schools are in the critical position of preventing students from dropping out and assuring that students who are not bound for four-year colleges receive an education that prepares them for the demands of the workplace or for education at a community or technical college.

This publication is divided into three main sections: **Section One, School-Wide Change**, offers advice on changing the culture of a school, ideas for block scheduling, descriptions of innovative instructional strategies, and ways to improve the transition from middle school to high school. **Section Two, Graduation Alternatives**, discusses characteristics of effective alternative programs for students at risk—including schools-within-schools and alternative schools—and approaches for helping high school students pass the GED exam. **Section Three, Integrating Academic and Vocational Education**, discusses eliminating the general diploma track, integrating academic and vocational education, providing students with work experiences connected to their schooling, and assuring that all students receive adequate counseling as they make educational and career decisions. Most of these strategies complement one another so that high schools and school districts may consider implementing more than one approach. A compilation of annotated resources describes publications and organizations that can provide further information or assistance related to reengineering high schools.

Many of the initiatives for reengineering high schools described in this publication are discussed in greater detail by other authors; SERVE's intent is not to be exhaustive but rather to give practitioners ideas, tools, and examples that can form the basis for addressing the "big picture" of reengineering high schools.

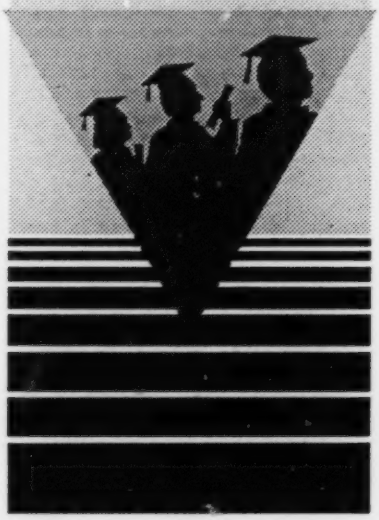
This publication also profiles several high schools in the Southeast that are successfully implementing reengineering initiatives. Interviews with principals, teachers, guidance counselors, and students; observations in classrooms; and documentation prepared by the schools provided a good picture of the challenges and rewards of reengineering high schools. The text is also supplemented by shorter descriptions—called "Dynamite Ideas"—of other innovative efforts in the Southeast.

Section

1

SCHOOL-WIDE CHANGE

- Changing the School's Culture
- Using Block Scheduling
- Making Classroom Instruction More Meaningful
- Improving the Transition from Middle School to High School



SCHOOL-WIDE CHANGE

Preventing students from dropping out of high school requires a school-wide commitment to comprehensive improvement. At the same time, since high schools do not just want to keep students in school, but want to provide all students with meaningful learning experiences, school-wide reengineering is a necessity. Section One describes several approaches to school-wide change, each of which can promote significant improvements in the school experiences of all students, and all of which can be implemented in the same school.

CHANGING THE SCHOOL'S CULTURE

A school's culture can mean everything to student success. Everyone who works at a school—students, teachers, principals, and other staff members—must feel that they belong there, that others care about how they are doing, that their opinions matter and will be heard, and that the work they do at the school has a purpose. William Glasser, a psychiatrist with many years' experience working in schools, has suggested that no matter how "tough" schools get with students, students will not learn if their psychological needs—for love, power, freedom, and fun—are not met (Gough, 1987). Similarly, Damico, Roth, Fradd, and Hankins (1990) studied students' perceptions of the school environment and found that students said they did not learn if they thought a teacher did not like them and were not likely to stay in school if they perceived school personnel as insensitive or oblivious to students' cultural differences. On the other hand, students felt pride and a sense of belonging when their school made extra efforts to involve them.

As any who have tried will readily agree, changing the culture of a high school is no simple matter. Productive attempts at cultural change must begin with group discussions among all school staff. In observing such discussions at one high school, Grant (1988) identified five stages in the process:

1. testing of the need for change,
2. expressing and addressing doubt and resistance,
3. emergence of belief that common action is possible,
4. development of shared meaning about desirable policies and practices, and
5. proposal of a strategy for school-wide change (p. 248).

Research suggests that such a group process for change is accompanied by personal growth processes for the individuals involved (Gordon, 1984; Marris, 1986). Teachers and administrators may find their beliefs and assumptions challenged

Walk into a school and you can tell almost at once if it is a decent place to be. The signals are everywhere: in the way teachers and students speak to each other, the way work is carried out at every level, the way rules are made and bent and broken, even the slumps or smiles of the office or custodial staff. What is valued in a school comes across in a hundred subtle ways, rarely articulated.

Kathleen Cushman, "Behavior in a Thoughtful School: The Principle of Decency," 1991

by others; they will have to integrate new knowledge with old practices and redefine the meaning of their positions in the school. Questions that high school staff will want to ask themselves include "What makes a good school?," "Why should students stay in school?," and "What should every student know and be able to do when he or she leaves school?"

Stanford professor Henry Levin's Accelerated Schools start with the premise that when schools provide rich educational experiences for "so-called at-risk kids," the students will be able to draw on their own strengths and talents to learn (Brandt, 1992, p. 20). He helps schools change their culture by explaining this philosophy to teachers, administrators, and parents; requiring that at least 80 percent of the entire school community (including secretaries, custodians, and student representatives) vote to make changes in their school that reflect this philosophy; asking school staff to write their visions of the "dream school" that they would want for their own children; using staff development workshops to compare this vision to the current strengths and weaknesses of the school; and helping schools prioritize the things they want to change (Brandt, 1992, p. 23). Over 300 schools in 25 states are currently applying Levin's philosophy and model to improve the learning experiences of at-risk students.

Theodore Sizer at Brown University founded the Coalition for Essential Schools to help high schools improve their culture and climate and redesign their approaches to student learning and achievement.

<u>Coalition for Essential Schools</u>

Theodore Sizer's Coalition for Essential Schools is based on a similar approach to school change—including the need for school-wide consensus and group discussions of goals—but offers a less structured approach to helping schools change. Schools that are members of the Coalition are guided by nine principles identified through research on high school improvement. Briefly, these principles call for schools to

1. set clear and simple goals about the intellectual skills and knowledge to be mastered by all students;
2. reduce teacher-student loads;
3. personalize teaching and curricula;
4. make student work the center of classroom activity;
5. adopt interdisciplinary approaches;
6. award diplomas based on students' exhibition of their learning;
7. adopt a "less is more" approach by concentrating on fewer subjects in greater depth;
8. create an atmosphere of trust and respect for the school, faculty, students, and parents; and
9. accomplish such changes with no more than a ten percent increase in the school's budget.

The Coalition now includes over 130 schools in nearly 30 states. To become members, schools must present a plan for change that is supported by the faculty and consistent with the above principles. Joining the Coalition is free, but most schools spend at least $50,000 a year for the first three years to cover the costs of release time, travel, and professional development. Staff at Brown University promote networking among schools, offer

ADVICE FOR IMPROVING SCHOOL CULTURE

- **Establish school-wide change as a priority**. Do not let the day-to-day management of the school get in the way of long-term thinking, planning, and action.
- **Make sure that change is a team effort** involving teachers, counselors, and other staff as well as the principal.
- **Pay school staff for the extra time** involved in planning reengineering.
- **Agree on a simple mission statement for the school** and use it to guide decisions about school goals, program implementation, and treatment of students.
- **Be prepared for resistance from staff**. "We're disturbing people in their comfort zone," said one teacher. Counter resistance by taking small steps, keeping uneasy staff members involved, and highlighting the benefits of change for staff.
- **Emphasize to teachers that they have not necessarily been doing anything wrong**, but that students' needs are changing, the work force is changing, and teachers need more tools with which to do their jobs and reach more students.
- **Offer staff development** pertaining to changes and let teachers design it; ask teachers what they want to know.
- **Learn from others' experiences**. Visit other successful schools or programs, ask others what not to do, attend conferences, and read current research findings.
- **Involve parents in the planned changes**. Be sure they understand what the school wants to do and seek their suggestions, support, and criticism.
- **Involve students in planning for change**. Ask for their ideas about what needs to be improved, how they can be served more effectively, and what questions or concerns they have.
- **Seek support from the district superintendent and other administrators**. Changes in policies or funding allocations will be much easier if administrators are on your side.
- **Do not be afraid to take risks in making changes**. Encourage teachers to try new approaches in classroom instruction even if they might fail.
- **Be prepared to spend at least one year planning for future changes**. Generating enthusiasm, locating helpful information, working out logistics, and completing other preparatory steps will be time consuming.
- **Persevere**. Be patient and persistent. The first year is the hardest when you meet and work, meet and work, and do not seem to be getting anywhere, but once you get the wheels moving, many changes may get underway at once.
- **Celebrate victories large and small**. Organize an annual staff retreat to look back on what was accomplished over the past year and look forward to the future.

The strategies for creating an effective school have also been found useful in designing successful dropout prevention programs.

professional development opportunities, collaborate with other organizations, and disseminate research findings on school redesign. An outgrowth of the Coalition is a state-level initiative called Re:Learning. Co-sponsored by the Education Commission of the States, Re:Learning states seek to create an environment conducive to school-wide change through state policy and district support. South Carolina is currently the only state in the SERVE region that is a member of Re:Learning. For more information, contact the Coalition for Essential Schools, Box 1969, Brown University, Providence, RI 02912, (401)863-3384; Re:Learning—South Carolina, J. Robert Heathwood, 3000 South Beltline Boulevard, Columbia, SC 29210, (803)765-2309; or the Broward County (Fla.) Coalition of Essential Schools Project, Broward County Public Schools (305)765-6335.

While the decisions on what changes are necessary for an improved climate must be made on a school-by-school basis, research, (Follman, Vedros, & Curry, 1992; Lezotte, Edmonds, & Ratner, 1974), has identified a number of indicators that are characteristic of schools with a positive school culture:

- clear goals
- school-focused improvement
- strong leadership
- high expectations
- focused program of instruction
- collaborative decision making
- individual and organizational development
- order and discipline
- maximized learning time
- parent/community involvement
- incentives/rewards for academic success
- careful and continuous evaluation

Research has also shown that these same characteristics of effective schools can be found in the most successful dropout prevention programs (Texas Education Agency, 1989). For instance, a Southern Regional Education Board (SREB) study of six sites working to prevent students from dropping out of school found that these schools emphasized high academic expectations for all students. Students praised teachers for caring about them and making them work hard, and teachers devoted more time and energy to developing assignments and assistance for students who needed extra help (Presson & Bottoms, 1992). Such schools also identify, target extra services to, and monitor potential dropouts throughout their high school careers.

Visits to southeastern high schools engaged in change revealed the difficulties and rewards involved. Faculty and staff at these schools offered sensible advice based on their experiences in improving the cultures of their schools. In fact, the advice they offer applies to many programmatic or structural changes that might be made at a school, including those discussed later in this document.

Two publications in the SERVE Hot Topics: Usable Research series can provide more information on processes and strategies for changing a school's culture. Step-by-step suggestions for initiating and implementing a plan for school-wide improvement can be found in *Comprehensive School Improvement*. Suggestions for fostering growth for school professionals and developing a school leadership team are offered in *Schools for the 21st Century—New Roles for Teachers and Principals*. See the Resources for order information.

USING BLOCK SCHEDULING

Block scheduling is another tool that many high schools around the country are attempting to effect school-wide change. The basic purpose of block scheduling is to create a longer period of time for each class. There are a variety of ways to do this, but the two basic approaches are (1) holding fewer classes per day that meet every other day for the full year (a typical even/odd or A/B schedule) or (2) scheduling fewer classes per term or more terms per year. The benefits of changing the schedule in this way include giving students and teachers fewer classes to prepare for each day, enabling more classes to be taught and taken each year, allowing teachers to be responsible for teaching fewer total students per term, and encouraging the use of more effective instructional practices during the longer class period. *(Appendix B provides examples of block schedules.)*

A look at a specific model may help clarify how block scheduling works. Joseph Carroll, a former superintendent of schools in Massachusetts, created and piloted the "Copernican Plan," which combines block scheduling and other features of school-wide change such as mastery learning to improve student success in high school (as paraphrased by Singh, 1992):

> The purpose of the Copernican Plan was NOT to change the schedule but to create an environment and structure in which teachers and students could have a better relationship, one in which both would also have more manageable workloads. Schedule changes were a *means* to that end, not an end in themselves. (p. 24)

The Copernican schedule asks a teacher to teach two, two-hour macroclasses each day for 12 weeks, three times per year (so that each course will be 60 days or 120 hours) or teach a single, four-hour "macroclass" each day for six weeks, six times per year (so that each course will be completed in 30 days or 120 hours). Either way, a teacher can teach six classes per year (instead of the usual five) and have only one or two course preparations per day. Also, even if each teacher's daily schedule includes an additional one-hour elective, he or she will see a total of only 50 to 75 students a day for the term (Singh, 1992).

Too often, a student [in a traditional high school] has worked through a concept or process and things are beginning to fall in place—and suddenly it's time to go to another class. Short class periods often prevent intensity of engagement—deeper discussion, exploring questions in greater detail, and relating class work to current problems and other disciplines.

Joseph M. Carroll, *The Copernican Plan: Reengineering the American High School*, 1989

SCHOOL PROFILE:

Forest Park High School in Forest Park, Georgia, applied many of the tenets of effective change from research and practice to become a model of successful school reengineering. Its climate is positive, inclusive, safe, and orderly. School management is shared among administrators and teachers. Teachers are skilled in effective instructional techniques emphasizing cooperative learning and critical thinking, and the curriculum includes many applied academic and technical courses that the students view as challenging and relevant. Diploma options include college preparatory, vocational preparatory, or a combination of both, and high expectations for future success are held for all students. Career counseling emphasizes some postsecondary education for everyone, and many students take at least one vocational course before graduation even though this is not a graduation requirement.

Yet all these improvements were made in a challenging environment. An urban school near Atlanta, Forest Park has a student population of 1,400 with 57 percent white, 32 percent African-American, 9 percent Asian and Pacific Islander, and 2 percent Hispanic. Many Forest Park students come from low-income neighborhoods or from a nearby housing project.

A climate of respect and care for others is evident to a visitor at Forest Park High School. A banner hanging just inside the front doors proclaims "Welcome to the Park" and lists the school's key values: learning and respect. "This is a peaceful place," asserts principal Margaret Manos as she stands out front to greet students in the morning. She uses this time to defuse problems before they enter the school building and to talk to students. Appearing to know all of them by name and to be aware of individual circumstances, she asks questions such as "Are you doing better in English?" or "Have you taken care of that problem we talked about?" Students are responsive to her and ask for clarification about schedule changes or obtaining their yearbooks. They then head directly to a study-hall period where they are expected to finish the previous night's homework. "Many don't have a quiet place to study at home," explains Manos.

The reengineering of Forest Park began in 1989. The faculty and staff asked themselves, "What does an ideal urban high school look like and how can we get there?" Everyone in the school was involved in trying to answer this question, which resulted in a new mission statement, the establishment of long-term goals, and a partnership with SREB to create a more effective educational experience for all students. Forest Park's mission is "to provide effective opportunities and encouragement for each of our students in learning fundamental academic and technical skills, thinking and reasoning skills, and interpersonal skills." This statement and the school's two key values—learning and mutual respect—have guided the changes made at Forest Park. "We are a school of character and purpose," said one teacher. As one example, ninth grade orientation each year includes time for the principal to share the history and myths of Forest Park High; despite all the changes, says Manos, "we do not want to lose a sense of the past." The school also provides an annual report to faculty, students, and the community about progress toward its ten goals. The report includes future plans and perceived needs related to each goal.

Much of the improvement at Forest Park has been accomplished without additional resources, and the principal and teachers stress that money was not necessary to make the important

changes in climate and organizational structure. In fact, emphasizing the need for school-wide conversations and planning, Principal Manos warned that money "might get in your way until you get direction." Even so, the quality of newly integrated academic and vocational courses was made possible by funds from SREB that allowed the purchase of state-of-the-art equipment. Also, professional development funds available from the district were used to help teachers improve instruction and prepare to teach new technical courses.

As academic teachers change the focus of their classes from theory to application, and as vocational teachers integrate more academics into their instruction, students benefit from a blending in the curriculum. For example, students in a business course have learned computer and writing skills while designing a portfolio of research reports, letters to employers, letters of recommendation, and résumés. Students in a drafting course are designing a real house; the students are refining the computerized plans and demonstrating their proficient use of the drafting software by trying out different roof styles and floor plans. By eliminating the general track diploma and revising methods of counseling, Forest Park is also breaking down the old student hierarchy that puts college-bound students on top and everyone else on the bottom. Students recognize the improvements that have been made at their school. In fact, the 1992-93 yearbook—designed by students—includes sections on cooperative learning and critical thinking.

Teachers also reap the benefits of an improved climate. They know that the administration supports them in taking risks and are eager to show the successful practices in use in their classrooms. Teachers have not been forced to make changes. Volunteers teach the applied classes and serve on improvement committees, and reform has happened gradually as the interest shown by respected veteran teachers has induced others to participate. A climate that values teachers is also evident. For example, administrators have taken over bus and lunch duties, emphasizing the importance of the teachers' role as instructors. When a small group of teachers wanted to learn more about critical thinking but could not find an appropriate workshop, the administration supported them in doing research to conduct their own. A camaraderie among the staff has also developed; faculty and administrators sit together as a group at lunch, and teachers welcome visits from the principal to their classes.

Manos notes that changes on the scale that her school is making do not take place without some difficulties; one of the short-term results of Forest Park's reengineering has been an increase in the failure rate. Students, like teachers, need time to adjust to a different learning environment, but Manos is confident that the school's new curricular methods will reduce the dropout rate at Forest Park over the long term.

For more information, contact:

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The Copernican schedule clearly has an affect on instruction, since lecturing for two to four hours to the same group of students is unrealistic. Instead, with appropriate staff development, teachers can use the longer blocks of teaching time to

- practice more cooperative learning activities,
- use more hands-on labs,
- team-teach across disciplines,
- work with students on longer projects, or
- take students on field trips without interfering with other classes.

In addition, when teachers are responsible for fewer students and classes during any one term, they can

- develop a better rapport with students,
- become more familiar with students' individual learning styles and needs, and
- design lessons that accommodate individual differences.

Teachers also know that they are assigning all or almost all of the students' homework each night, so they can better gauge how much students can accomplish before the next day.

A Copernican-type block schedule also benefits students by enabling them to

- prepare for and attend fewer classes each day.
- spend more time on reading, discussion, cooperative learning, and studying when class periods are expanded from 50 minutes to two hours.
- take more courses per year (e.g., attending one or two macroclasses each morning, totaling six classes for the year), leaving time in the afternoon for one or two electives. Since 45 states have recently increased course requirements for graduation, students—especially those who need remediation to pass such courses—benefit when the schedule allows them to meet these requirements and still have time for electives (Gray, 1991).
- plan a more flexible, individualized schedule to meet their education needs. For example, a student can complete six academic requirements per year in the morning and still have afternoons free to attend vocational courses, take community college courses, or work a job. Or, a student can complete a six-week off-campus internship and still finish five macroclasses for the year.

In addition, students who have dropped out of school, but need only a few credits to graduate, may be induced to return to school if they can complete the credits in 60 days instead of 180 (Carroll, 1989).

Another potential benefit of this kind of scheduling is that schools using this system can easily move into a year-round schedule by adding one or two terms in the summer. Schools

also need to purchase fewer textbooks because only a limited number of students take a particular course during any one term. Although an even/odd block schedule in which longer classes meet on alternating days does not offer all of the same benefits as a Copernican schedule, it has the same basic results—longer class periods and fewer courses per day—and may be easier for a school to implement.

Of course, block scheduling has its drawbacks as well, and schools that are considering this aspect of reengineering will have to deal with them. For example, block scheduling may cause problems for students who are assigned to a mediocre teacher two to four hours a day. However, Carroll (1989) suggests that such problems can be solved with team teaching and staff development to help all teachers learn how to plan for large blocks of teaching time.

Staff development must also be available to new teachers and substitutes unfamiliar with the system. In addition, teacher contracts and union agreements may have to be changed to accommodate the new schedule and number of courses taught per year (Singh, 1992).

Students may also face some difficulties with block scheduling, such as the following:

- Those who transfer mid-year from or to a traditionally-scheduled school may have some trouble adjusting to the different system, catching up, or transferring credits.
- Students may have difficulty catching up in a compressed macroclass after they have been absent. However, making up missed work is probably not any easier for students who miss six classes per day than for those who miss one or two longer classes per day (Singh, 1992).
- Students who are preparing to enter end-of-year competitions or take Advanced Placement tests in the spring may be challenged by block scheduling. For example, if AP English is taught in a macroclass from March to June, but the test is given in early May, students will not have covered all of the necessary material before taking the test.

SCHOOL PROFILE:

Everyone at West Lincoln High School in Lincolnton, North Carolina, is working hard to change the culture at the school. Four years ago, faced with high numbers of students who were failing classes or grades or dropping out of school altogether, the principal and teachers decided that changes had to be made. After attending a presentation on "comprehensive schools"—schools involved in school-wide change—the principal began to seek support from the superintendent, other high school principals, and the school board while a few lead teachers worked to involve their colleagues in plans for change. Essentially, West Lincoln wanted to change the way the school "did business" by recognizing that the school had to take responsibility for helping all students succeed; if many students were failing, the school must be doing something wrong. This shift in responsibility for failure from student to school was a fundamental change that guided the school's reengineering.

West Lincoln, a mostly white, rural school with 720 students, has faced a number of challenges. Only 46 percent of the parents in the community have [illegible]h school diploma, and many students come from low-income households. Few residents—mostly the teachers—are college-educated professionals. Before changes were made at the school, 30 to 40 percent of their students were failing their classes each year, only half the student body was taking Algebra I (the state now requires that every student pass Algebra I before graduating), and 20 or more students were tardy at the start of every class period. Given these and other issues, staff began to rethink those policies that excluded students from learning experiences or made it hard for students who learn at a slower pace or in different ways to be successful. The school developed a brief mission statement articulating a commitment to challenge students, care for students, and change. Subsequent improvements at West Lincoln High School have included the following changes:

- Teachers have instituted a re-teach/re-test policy that encourages students to spend more time on a concept by allowing them to retake a failed test up to three times.
- An after-school tutoring/catch-up program, with paid teachers as the staff, offers students extra help with homework or prepares them to re-take a test they have failed. In addition, most teachers have voluntarily agreed to stay after school a few nights each month to work with their students.
- Students who are failing Algebra I can have their schedule altered in order to take two periods of Algebra I a day.
- Summer school has been eliminated; those funds have been reallocated to support an eight-period day. Students can come in at 7:00 a.m. to get an extra credit in their daily schedule, which is especially important to students who have to leave school early to work a job or take care of a child.
- An academic booster club has been created—complementing sports boosters and band boosters—to demonstrate the value of academic excellence at the school.
- A new tardy policy has been instituted that provides a warning bell when students have one minute left to get to class. (Students have dubbed this the "sprint bell.")
- Teachers and administrators have regular conversations with faculty at West Lincoln's feeder middle school to obtain information about students who might need extra help in the ninth grade. Using student grades, absence reports, discipline records, test scores, and teacher recommendations, the school targets such students for extra attention and help.

- A "focus class" for students identified as at risk meets one period a day for credit. Classes are small—three to ten students—and include discussion of issues such as self-esteem, study skills, course requirements, career planning, and hygiene.
- A "Young Mothers Club" provides support for pregnant and parenting teenagers.
- During the 1993-94 school year, the school changed to a block schedule with 90-minute class periods. Teachers designed new courses that the previous schedule was too crowded to accommodate, and staff development—designed to meet teachers' expressed needs—is being offered to help teachers use instructional techniques appropriate for longer class periods.
- A Learning Center is planned for all students to use as a resource during the school day. It will be staffed every period by a teacher from each major subject area, a special education teacher, a counselor, and peer tutors.

Principal Kelly Childras believes that no teacher in the school would want to go back to the old way of doing things. Test scores are up, tardies have evaporated, and parents no longer call to complain about their children's failures. But more than that, West Lincoln has a new respect for teachers and students and the motivation to strive for continued improvement. Teachers, such as Helen Heavner and Blake Carpenter, co-chairs of the school improvement committee, admit that changes at West Lincoln have been hard and that they are not yet where they want to be in terms of student success, but their enthusiasm for what has been done is unmistakable. While the specific programs or policies that have been implemented at this high school might not be appropriate at every school, the emphasis that West Lincoln puts on changing its culture—the way it viewed student failure—can serve as a model for other high schools' improvement efforts.

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Dynamite Idea

Southside High School

Southside High School in Greenville, South Carolina, has implemented an "A/B flex schedule," allowing students to take four 90-minute classes a day—totaling eight classes a year instead of seven—on alternating "A" and "B" days. In addition, "sunrise" classes that meet every day at 7:30 a.m. further increase the number of credits that a student can earn. The classes—including keyboarding, debate, and string instruments—are not offered during the regular school day. Such schedule restructuring helps students who have failed a grade to catch up and allows students to take more electives—including courses at the Donaldson Career Center and Fine Arts Center—and still meet rigorous academic requirements. It also solves some of the scheduling conflicts that Southside guidance counselors have been experiencing.

The flex schedule is encouraging the faculty to plan more interdisciplinary and team-teaching approaches. Staff development has focused on teaching techniques appropriate to 90-minute classes. In addition to attending workshops, faculty members have visited other high schools using block scheduling.

Source: LeBlanc, 1993.

Perhaps the most serious concern raised about block scheduling is whether or not students learn as well and retain as much knowledge as students in a traditional schedule. To address this concern, Carroll pilot-tested the Copernican model in one Massachusetts school, and a team of researchers from Harvard University compared block-scheduled students to a traditionally-scheduled control group. Although the block-scheduled students spent only 100 hours on a subject (compared to 139 hours for the control group) and initially had histories of lower academic achievement than the control group, the block schedule students learned at least as well as or as much as the control group. The Copernican students also retained this learning over time; even when Copernican students took a test in December that the control group did not take until June, the groups scored equally well on the same test the following fall (Singh, 1992).

MAKING CLASSROOM INSTRUCTION MORE MEANINGFUL

> Schools must act on the belief that improving the match between what work requires and what students are taught requires improving *how* students are taught.
>
> Secretary's Commission on Achieving Necessary Skills, *Learning a Living: A Blueprint for High Performance*, 1992

Despite all the structural and programmatic changes that a high school makes, its ultimate goal must be to improve the quality of teaching and learning. Meaningful instruction at the high school level implies relating tasks and information to real-life experiences, helping students develop skills as well as ideas, and encouraging students to generate questions as well as answers. Damico et al.'s (1990) study of students' perceptions of high school indicates some of the problems with traditional instruction. Most students they interviewed

- found many of their classes boring, especially those in which they had to read a chapter and answer the questions at the end;
- felt that they learned best when they were active participants in the learning, were encouraged to ask questions, and allowed to work in groups; and
- complained that teachers often failed to explain the relevance or utility of the assignments.

Other effective instructional strategies for high school students include peer tutoring, cross-cultural activities, accommodating different learning styles, and encouraging artistic or interpersonal skills as well as verbal and math skills. Other researchers have discussed these approaches in detail—see the Resources for suggestions for further reading.

Students must learn how to work in teams if they are going to be prepared to join the work force.

Cooperative Learning

While schools attempt to prevent students from cheating when they give or receive help, success on the job may be determined by one's ability to work cooperatively with others (Bottoms, Presson, & Johnson, 1992; SCANS, 1992). Students must learn how to work in teams if they are going to be prepared to join the work force. In cooperative classrooms, teachers assign students to small working groups and provide materials and instructions that require students to depend on one another yet be individually accountable for their progress. By working together to solve problems, conduct an experiment, develop a presentation, or write a paper, students learn the value and challenges involved in cooperating to reach a mutually desired goal. Group members can be assigned different roles, such as recorder, checker, and

(continued on p. 18)

SCHOOL PROFILE:

Florida State University School (FSUS), a research school affiliated with Florida State University in Tallahassee, is currently implementing a version of the Copernican Plan using trimester scheduling. The process began by bringing the faculty together to brainstorm different schedule configurations that they thought would work in their school. Some teachers were reluctant because they believed that 180 days were necessary to teach their courses or they were concerned about creating two-hour lessons, but they were intrigued by the possibility of reducing the number of students assigned to them. As a result, the staff decided to move gradually toward block scheduling and evaluate the impact along the way.

The first step occurred during the 1992 summer-school session when teachers and students were invited to try compressed macroclasses. The summer school secondary teachers worked together to design longer, more engaging lessons and sought help from elementary school teachers who had more experience teaching long summer-school classes. At the end of the summer, the teachers reported less stress and greater enjoyment, and students reported a positive experience.

That fall, the school instituted a transitional even/odd schedule in which most classes were two hours long but met for the full school year (three classes met on even days and the other three met on odd days). This schedule was selected so that teachers and students could experiment with two-hour lessons but would not yet have to adjust to trimester scheduling. Teachers were provided with a number of staff development opportunities; they began to share ideas with each other and tried some interdisciplinary teaching. Some teachers found that they could accomplish more in two hours; for instance, foreign language teachers found that they could complete more by using two-hour sessions than they could accomplish in a typical one-year traditional course. Teachers also reported that they had a better understanding of student strengths and weaknesses, had more time to work with individual students, had less paperwork to handle each day, and could act more as facilitators of learning in the classroom (Foster & Lewis, 1993).

During the 1993-94 school year, the school began full implementation of a three-term schedule, with two, two-hour blocks in the morning and two, one-hour blocks in the afternoon. To plan for this, the registrar and counselors worked with a group of students to map out trial schedules of their remaining high school years, making sure students could meet all requirements within the new format. The school also held a series of eight meetings with parents to answer questions about the changes. Patrick Murphy, a leading teacher in FSUS' move toward block scheduling, pointed out that as faculty have reworked each course to prepare to teach it in 60 days, they were required to prioritize information, look at the "big picture," and ask, "What do students really need to know?" They have also tried to provide more creative course offerings. For example, students will be able to take a team-taught, year-long two-hour course that combines Algebra I and Geometry; complete an internship at the state legislature during one trimester; or enroll in a new course on world religions that the teacher never had time to teach before.

Florida State University School, Tallahassee, Fla.

Florida State University School serves as a model for other schools interested in block scheduling. The experiences of the principal and teachers have resulted in the following advice:

- Try to avoid combining block scheduling and traditional scheduling; this is too confusing for everyone. However, you may want to pilot a block schedule with the teachers and students of only one grade.
- Assure teachers that no reductions in staff will take place.
- Meet with teachers' union representatives to make any necessary contract revisions.
- Seek out the essential support from school and district administrators.
- Assure parents of currently successful students that their children will not be hurt by the changes.
- Be sure that students will still meet state and local requirements for participation in extracurricular activities.
- Encourage students to design a schedule each term that combines two difficult academic classes.
- Obtain a computer program for scheduling trimester programs.

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encourager, but all students must be able to accurately explain what they have learned. Much of the research that has been conducted on the effects of cooperative learning shows that students in cooperative groups have higher achievement, use higher-level thinking skills, retain information better, link subject areas better, and have improved interpersonal skills than students who work individually or in competition with one another (Johnson, Johnson, & Smith, 1991).

As students try to explain, they also begin to question and seek out more information to shed light on the subject in the process of constructing their own knowledge of the subject. These assumptions call for applied learning, discovery learning, introspection, reflective learning, and similar student-centered approaches.

William E. Blank and Janet B. Scaglione, *Integrating Academic and Vocational Education: Implementation Guide*, 1992

Thinking Skills Instruction

While too many high school teachers still rely on rote memorization, end-of-chapter review questions, and lecturing to "give" students information, many teachers are learning about and sharing with each other the positive results of integrating the teaching of thinking skills with content learning and of engaging students in the construction of knowledge. Problem-solving exercises allow students to work through the process of finding answers and discovering ambiguities while they deal with concrete, "real-life" issues. Creative brainstorming, simulation exercises in which students play roles in unfamiliar situations, and laboratory activities that give students the freedom to try different approaches are all examples of problem-solving experiences. Similarly, critical thinking skills allow students to organize, analyze, and make judgments about information. These skills include asking good questions, constructing arguments, using logical reasoning, judging the credibility of sources, detecting bias and logical fallacies, and offering evidence to support conclusions (Beyer, 1985; Young, 1992).

Interdisciplinary Teaching

Interdisciplinary teaching is not new to high schools; team teaching, writing across the curriculum, and linking mathematics and science are common instructional tools in many classrooms. However, high school reengineering offers the opportunity to permanently remove barriers between disciplines and departments in order to create more realistic learning experiences. Exploring complex and interdisciplinary issues requires students to make sense out of and apply information from a variety of subject areas. Schools that institute block scheduling or outcome-based education have myriad opportunities to integrate traditional courses and design new macroclasses around broader topics. Some member schools of the Coalition for Essential Schools (see page 4) are creating new integrated curricula that allow students to draw on various disciplines and resources to analyze information and solve concrete problems in ways that have excited and involved formerly unmotivated students (Cushman, 1992).

Service Learning

Service Learning is the integration of service activities into the academic curricula and vice versa. Service learning goes far beyond simply picking up trash from alongside the highway or sponsoring a canned food drive; it is a method in which students learn and grow through thoughtfully organized service

Dynamite Idea

Helping Hands Service-Learning Project

To expand educational opportunities for students in the Bremen schools in Bremen, Georgia, the school system turned to the local community as a basis for service learning projects. Nearly the entire town of Bremen serves as a working classroom for service projects, allowing the school to meet students' academic needs and help improve school-community relations. Student projects include involvement in local politics, landscaping and beautification; volunteering at nursing homes; and mentoring elementary school children. Student volunteers are accepted from high school, middle school, and elementary school grades.

Service projects are designed to apply classroom knowledge and skills to meet community needs. For instance, the high school Business Department's student chamber of commerce works with the Bremen Chamber of Commerce to study the economic situation in the community and participate in economic development activities. Under an apprentice program, career exploratory students volunteer in occupations that interest them. They learn about business by working at the local chamber of commerce and about health care by working at a nursing home and sick children's nursery. Students from an American Government class volunteer during the city elections. In an English class, students design and wear folk hero costumes as they read stories to elementary school children. Another English class visits a senior citizens' center to record stories and reminiscences of the elderly and publish them. Middle school students in a Community Projects Exploratory class volunteer at the local nursing home, with Head Start, in public housing projects, at the elementary school, or at other service sites. Special Education classes design activities and develop projects for the Early Bird preschool program. Chapter 1 volunteers tutor elementary school special education students in a variety of subjects. Elementary school students work together by grade, collecting food for local ministries, working on beautification projects, or adopting nursing home and hospital residents.

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Source: *Sharing Success in the Southeast: Promising Service-Learning Programs*, 1993.

experiences that meet actual school or community needs and that are coordinated in collaboration with the school and community (National and Community Service Act, 1990).

The concept of service learning is catching on rapidly throughout the nation, as schools discover that when students serve others, they serve themselves as well. Service activities provide students with opportunities to actually use newly developed skills in their communities. Studies have shown that such programs improve grades and attendance and reduce dropout and disciplinary problems (Conrad & Hedin, 1989; Follman et al., 1992). Federal support for service learning has resulted in the 1990 National and Community Service Act, which will provide over $100 million to K-12 and postsecondary schools to promote service learning and other volunteer service. Every state in the SERVE region has received funds for service learning programs under the Serve-America portion of the 1990 Act.

For thousands of examples of service-learning projects at all grade levels (both interdisciplinary and by subject), see the SERVE Hot Topics publication, *Learning By Serving: A Service-Learning Compendium* in the Resources.

Effective service-learning programs

- meet school or community needs,
- foster interdisciplinary approaches to teaching and learning,
- promote intergenerational interaction between students and other members of the community,
- improve school-community relations,
- give participating students the chance to learn work and life skills,
- give students adult responsibilities and the opportunity to help others less fortunate than themselves,
- give students a greater awareness of their roles and responsibilities as members of their community,
- provide students structured opportunities to reflect critically on their service experience,
- allow for those with needs to help define the kinds of service projects that will be performed on their behalf and participate in the projects,
- bring students together from diverse backgrounds to work on common goals,
- foster students' learning about the larger social issues behind the human needs to which they are responding, and
- emphasize reciprocity—the exchange of giving and receiving between the server and the person being served (Conrad & Hedin, 1989; Follman et al., 1992, Kendall, 1990, v.1; National and Community Service Act, 1990)

Outcome-based, Competency-based, and Performance-based Education

Outcome-based, competency-based, and performance-based education are among the most compelling trends in educational reform today. William Spady (1992), a long-time proponent of outcome-based education, clarifies how it can be the cornerstone of reengineering efforts:

Dynamite Idea

Mathematics and You, Dothan City Schools, Dothan, Alabama

Mathematics and You is a high school mathematics curriculum framework designed to stimulate interest in advanced mathematics and increase the rate of successful completion of mathematics courses. It was developed when Dothan City Schools raised its graduation requirements for mathematics from two to three credits.

The framework was designed by the district curriculum committee, which worked for a year to develop a sequence of courses that would steer more students into Algebra I and improve the successful completion rate for mathematics courses. Restructuring efforts were focused on points that were determined to be dropout spots from the mathematics program. Program choices included the addition of five courses: Foundations of Algebra, Informal Geometry, Applied Math I, Applied Math II, and Advanced Math Topics, which were added to entice more students to study mathematics all four years of high school.

The program integrates six components of mathematics: problem solving; computational skills; estimation and mental arithmetic; language development; applied mathematics; and extensive use of calculators, computers, and manipulative for hands-on learning. These components are designed to develop mathematical power—the ability to discern mathematical relationships, reason logically, and use mathematical techniques effectively. All classes also stress practical applications of mathematics in the home and at work.

During the first year of the program, math enrollment grew by over 300 students, requiring the addition of three new math teachers. The failure rate in Algebra I dropped from 35 percent to 20 percent, and the failure rate in the entire math program dropped 15-20 percent. In 1991, 57 percent of the graduates had completed Algebra I; in 1992, 67 percent of all graduates had completed it—a trend that is expected to continue.

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> To base things on outcomes we would start at the end point—with our intended outcome—and define, derive, develop, and organize all of our curriculum planning, teaching, assessing, and advancement of students on that desired demonstration. (p. 7)

Since high school is the last phase of required education, students are ill-served if schools are not clear about what students should know and be able to do when they graduate. And, as Cushman (1992) points out, "If you start . . . by asking 'What do grown people need to know in order to do their jobs well?' you're not likely to come up with answers that fit easily into the conventional high school course of study" (p. 1). While school-wide change is clearly necessary to create an outcome-based high school education, individual teachers can also implement such an approach in their classes by designing course assignments, grading systems, and daily activities around a defined set of outcomes.

Alternative assessment must be integrated with curriculum and instruction.

Competency-based and performance-based approaches are an extension of an outcome-based emphasis. Many alternative secondary school programs and a growing number of high schools determine educational progress by the student's successful demonstration of certain competencies. Rather than measuring completion of a course by seat-time or completion of a high school education by Carnegie units, schools that use competency- and performance-based approaches define the actual information students are expected to know and actual tasks they are expected to be able to do and then design learning experiences accordingly. Assessment of competence is based on performances, such as presentations, projects, and/or a portfolio of completed assignments. True competency-based schools allow students to move through courses and grade levels at their own pace and do not allow students to graduate until they have successfully demonstrated competence in all desired areas. Schools moving toward this approach, however, must be careful to avoid an emphasis on covering all the material at the expense of in-depth learning and making connections among subjects.

Increasingly, computer-assisted instruction is used in schools as a means of allowing students to work at their own pace to learn basic skills and meet certain competency requirements. Such programs can help students concentrate on the areas of a topic with which they are having trouble, provide immediate feedback on learning, and serve as a simple way to assess a student's progress. A drawback of this approach, however, is that it denies students the chance to construct knowledge and work with others to solve problems—educational experiences that must be part of a well-rounded education. Therefore, while computers can be an important educational tool in competency-based programs, they should be only one of a variety of learning experiences.

Alternative Assessment

Instruction reforms have will little impact on student achievement unless we change the way students are assessed. Alternative assessments are currently being designed and piloted at the national, state, and local levels. These efforts concentrate both on revising standardized testing to include measurements of higher-order thinking skills and on replacing traditional tests of factual recall with more process-focused assessments of students' learning. Some of the alternative assessments that are being tried include

- portfolios that include samples of student work over time;
- individual and group interviews or discussions of students' learning experiences;
- individual and group problem-solving activities;
- student debates;
- student journals;
- research reports or books;
- presentations, speeches, or other kinds of performances; and
- student-produced videotapes or computer models.

An important aspect of alternative assessment is that it is integrated with curriculum and instruction; choosing to use authentic assessments affects decisions about what students should learn and how they should be taught. Teachers are encouraged to explicitly prepare students for the assessments and teach them how to "provide evidence of their own learning" (Maeroff, 1991, p. 274). Although the benefits of alternative forms of assessment are many, using new assessments is a challenge: deciding what criteria to use to evaluate a portfolio or writing project can be difficult; teachers often find authentic assessments more time-consuming; and widespread efforts must face issues of validity, reliability, and comparability. Schools also have to explain to students and parents how to interpret the evaluations of student work (Hiebert & Hutchison, 1991; Maeroff, 1991). For further information and examples of alternative assessments in science, please see the SERVE R&D publication, *How to Assess Student Performance in Science: Going Beyond Multiple-Choice Tests*, in the Resources.

IMPROVING THE TRANSITION FROM MIDDLE SCHOOL TO HIGH SCHOOL

The first year of high school is a "make or break" year for many students at risk of dropping out. For new ninth graders, the high school is unfamiliar and frightening, and graduation seems a long way away. For many, ninth grade is the most challenging grade in school.

Such has been the case at the Austin (Texas) Independent School District. When district administrators there observed that achievement test scores dropped considerably in ninth grade but rose again in tenth grade, they took a closer look at the ninth grade. Their examination revealed the following disturbing facts:

- Enrollment was higher in ninth grade than any other year before or after because more students were retained in ninth grade than in any other grade.
- More ninth graders were absent on an average school day than students in any other grade.
- Disciplinary action was required more for misbehavior by ninth graders than for students at any other grade.
- Half of all ninth graders in the district took home at least one failing grade each six weeks.
- More students dropped out in ninth grade than any other year (Austin Independent School District, 1987).

Schools can reduce dropout rates and improve student learning by helping ninth graders make a smooth transition to high school and have a successful first year in high school.

Studies suggest that records of absences and grades in the eighth grade combined with performance during the first term in high school are accurate predictors of which students are likely to drop out of school. Research also indicates that students who drop out after ninth grade had difficulty making the adjustment to high school. At the same time, students who feel a part of the life of the school and are involved in school activities are more likely to stay in school and maintain good grades and good attendance (Marshall, 1992; Troob, 1985).

These findings strongly suggest that schools can reduce dropout rates and improve student learning by helping ninth graders make a smooth transition to high school and have a successful first year in high school.

The key to improving the transition from middle school to high school is communication among educators, counselors, and administrators at both levels. Teachers can meet in subject-specific clusters to discuss course content in eighth and ninth grade, classroom management and discipline, characteristics of eighth graders, expectations of high school teachers, and relevant high school policies. In this way, middle school teachers can be clear about how to prepare students for the next level of schooling, and high school teachers can better understand where their ninth grade students are coming from, academically and

personally. High school guidance counselors can discuss with their middle school counterparts how to help eighth graders explore career possibilities and make plans for their high school courses of study. In turn, middle school counselors can forward information on at-risk students and specify the kinds of counseling and academic support provided in eighth grade. Academic, vocational, and arts teachers from the high school can accompany counselors when they register eighth graders for the next year to answer questions about specific courses and curricular tracks. Principals can meet to discuss policies at their respective schools and share their student and faculty handbooks. Communication also allows for a number of staff visits or "exchanges;" for example, interested teachers can switch school levels for a term or administrators can "shadow" an eighth-grade class for a day (Marshall, 1992; VanSciver, 1985).

Parents and students should also be involved. Parents of middle schoolers can be invited to meetings to have their questions about the high school answered and to attend a high school open house held specifically for rising ninth graders and their parents. In addition, students who had a difficult time making the transition to high school should be asked for suggestions about what information would have aided them in their adjustment. The following issues are important for rising ninth graders to understand:

- diploma options and appropriate sequences of study,
- course offerings and levels of courses,
- the implications of a "permanent record,"
- the consequences of repeated absences,
- other high school rules and regulations,
- activities and atmosphere of student life, and
- the layout of the high school building and its facilities.

Once a new cohort of ninth graders has entered the high school, special services and programs can be targeted to their needs and concerns. The new students can be divided into smaller "houses" or clusters—as is done at many middle schools—and receive advising and instruction from a small group of faculty (Van Sciver, 1985). Or, a specific teacher can be assigned to each ninth grader to provide guidance, praise, and encouragement (Brodinsky & Keough, 1989). Ninth graders also benefit from direct instruction about study habits, higher-order thinking skills, and decision-making skills. In addition, they need individualized and careful counseling to help them design the best educational plan for their high school years.

Dynamite Idea

Smooth Move Committees

When Bibb County Schools in Macon, Georgia wanted to improve students' transition to high school, they formed "Smooth Move Committees" of middle and high school teachers and administrators. These committees created a number of activities designed for eighth graders about the high school they would attend. They invited parents and students to question-and-answer sessions at the middle schools, developed a letter-writing network between eighth- and ninth-grade "buddies," and instituted one-hour spring final exams for eighth graders to prepare them for the two-hour high school exams.

The county's most successful activity—according to a student survey—is ninth grade orientation day, held at each high school the day before the school year begins. Parents and new students are sent special invitations by their respective high schools to attend a program featuring student leaders, administrators, and ninth-grade teachers. Students are then given their class schedules and helped by the previous year's buddies to find their classrooms and meet their teachers.

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Source: Marshall, 1992.

SCHOOL PROFILE:

Staff at Lovejoy High School in Lovejoy, Georgia, have done much to help students achieve in and enjoy their first year of high school. Lovejoy's district, Clayton County, has recently shifted from junior high schools to middle schools, which use more student-centered alternative educational approaches. As a result, ninth graders coming to Lovejoy High experience difficulty adjusting to the more traditional high school. Therefore, counselors and teachers at Lovejoy have made the ninth grade transition a priority with the hope that a successful first year will positively color the rest of the students' high school experience. They have instituted a program called Leaders for Excellence in Academic Discoveries (LEAD) as well as a number of preparatory activities for rising ninth graders.

The program, initiated during the 1992-93 school year, enables selected Lovejoy ninth graders to receive extra academic assistance through a team-taught half day of classes. All at-risk students—identified by eighth-grade test scores and teacher referrals—are placed in the program, and other ninth graders are randomly selected until 90 students are included in the morning team and afternoon team; transfer students are also placed in LEAD. Five teachers staff each team—two for English, two for pre-algebra, and one for social studies. These teachers have adjacent classrooms and two hours of planning time together during which they share information about students, call parents when necessary, and schedule sessions to offer students extra help.

The three-hour instructional block in the morning or afternoon enables teachers to plan more interdisciplinary activities, longer field trips, and a more flexible schedule; it also allows students to move more easily between courses and teachers. Having two teachers in the classroom for pre-algebra and English classes is also helpful; cooperative learning groups are easier to manage and one-on-one tutoring is common. LEAD teacher Rebecca Jones praises the team-teaching structure: "As a team, we are better for students; we get help from one another and do a better job teaching. We do not want to go back to being in our own classrooms by ourselves."

LEAD emphasizes learning study skills and taking responsibility for work to prepare students to succeed in higher grades. In addition to the LEAD program, the middle school-to-high school transition is aided by Lovejoy High School's counselors who work with a volunteer team of second semester ninth-grade students to communicate with eighth graders in a number of ways:

- The freshmen team is taken to the middle schools to answer questions posed by the eighth graders. Concerns range from "What's for lunch?" to "Are the teachers mean?" or "Will upperclassmen pick on me?"

- Volunteers from each eighth-grade homeroom visit the high school and "shadow" a ninth grader for the day. They then return to their own schools to answer questions from their classmates. (With 400-500 entering ninth graders each year, Lovejoy cannot easily accommodate a visit by every student.)

- English teachers in the middle school encourage students to write letters to ninth graders about their concerns, and members of the ninth-grade team write return letters.

- Counselors are also planning to have these same team members, when they are in tenth grade, offer extra attention and mentoring to new ninth graders who seem to be having trouble adjusting.

Lovejoy counselors keep in close contact with middle school teachers and counselors and hold meetings for parents of rising ninth graders to answer parents' questions about high school.

Thus far, LEAD has been very successful in meeting its objectives. In the first year of the program, LEAD students were less likely to fail a subject than non-LEAD ninth graders, had a higher attendance rate, and had fewer discipline referrals. LEAD's effect on dropout rates will be examined over the next few years.

For more information, contact

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Making the Transition to High School

A one-half credit study skills class for freshmen is required at J. L. Mann High School in Greenville, South Carolina. Intended to help students make a smooth transition to high school, each class of no more than 25 students provides a "period of guided assistance during the regular school day."

In each study skills class, the teacher—who usually has a language arts background—offers a 20-30 minute mini-lesson every day on topics such as self-concept, goal setting, listening skills, note taking, study techniques, test-taking strategies, reading/writing skills, and higher-order thinking skills. Other classes provide orientation to high school rules, the library, counseling offices, and tutoring services.

After the mini-lesson, students are given study time during which they can get help from the teacher and/or tutoring from upperclassmen. Students in the class also understand that their study skills teacher can serve as a personal advisor whenever they need to talk.

Source: Cook, 1993

A similar approach is used in the Roanoke Rapids Graded School District in North Carolina. Students identified as at-risk in the ninth grade are invited to take only five academic courses during their first year and spend the extra class period in supervised study time during which they receive study skills instruction and tutoring for their other courses. This class is taught by a certified teacher trained in counseling skills.

The district has found that students' stress is reduced when they have a lighter course load and that the tutoring boosts their confidence in their abilities to do well in school.

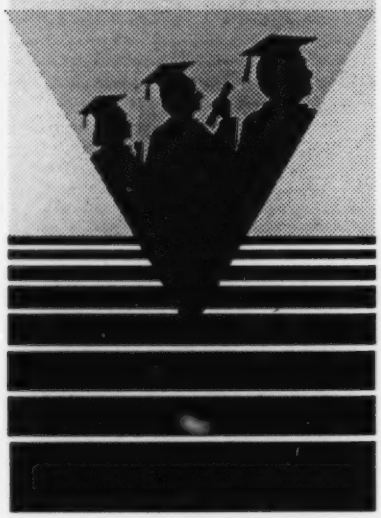
Source: North Carolina Department of Public Instruction, 1987.

Section

2

GRADUATION ALTERNATIVES

- Alternative Programs
- GED Preparation



GRADUATION ALTERNATIVES

Although high schools try to help all students succeed and graduate, some students may not be able or motivated to finish school in the traditional manner no matter what school-wide improvements are made. Such students are likely to drop out unless they are encouraged to earn a diploma through an alternative approach. Section Two highlights a number of options for an alternative high school education, including schools-within-schools, separate alternative high schools, and GED preparation programs. Although alternative programs can be tailored to the needs of special populations such as adolescent parents, students with disabilities, students who are learning English as a second language, or migrant students, this section will focus on strategies for students in general.

ALTERNATIVE PROGRAMS

Much research has been conducted on successful alternative programs, either within regular high schools or in separate facilities, for students at risk of dropping out. Such schools respond to needs not met in traditional schools and usually focus on a broader conception of student growth than just cognitive development. Alternative schools endeavor to improve academic achievement, but they also concentrate on building students' self-esteem, helping students develop and use better social skills, improving students' mental health, and meeting students' needs for personal attention. As Butchart (1986) describes it,

> the difference in climate or ethos between traditional schools and alternative schools is the difference between formally constituted groups, whose bonds are regulations, and communities, whose bonds are shared commitments, affection, and mutuality. (p. 17)

Butchart's (1986) review of the literature found that alternative schools do make a difference. Even though most of the students enrolled in alternative programs have had poor attendance in traditional high school programs, their attendance at alternative schools usually averages between 80 and 85 percent. Discipline problems and violence are remarkably absent at most alternative schools. Additionally, comparisons with control groups at traditional high schools show that students in alternative programs maintain higher grade point averages, earn more course

Alternative schools frequently suffer from a bad press. Many citizens associate them with permissiveness, lax standards, and mistaken priorities....[T]hey are still viewed as havens for hippies and indexes of educational "indiscipline." They have, however, matured and diversified remarkably in the last two decades, to the point that no single image or definition fits the range of options available under the alternative education umbrella. They have also turned in a remarkable track record for solid educational accomplishment.

Ronald E. Butchart, *Dropout Prevention Through Alternative High Schools*, 1986

credits, and have more positive attitudes about school, work, and themselves. As a result, these programs are also able to keep as many as 85 percent of their students from dropping out.

Whether the program focuses on modifying students' behaviors and attitudes to prepare them to return to the regular high school program or on providing a permanent alternative to the environment in which the poor behaviors occurred, close relationships with teachers and peers are key to students' success in alternative schools (Butchart, 1986). Other important components of an effective alternative education program are presented in the list at left.

Some students also seem to do better in surroundings that are different from the traditional school or classroom (Weber & Sechler, 1988). For example, alternative programs can be located at a renovated store-front or office building or in a school classroom that has been redesigned with tables and couches instead of rows of desks. Students who did not succeed in school also tend to progress better in flexible programs and practices, such as night classes, year-round school, computer-assisted instruction, field trips, and peer counseling. They also perform well in programs that focus on a broad vocational area or career field such as health or technology and feature interdisciplinary teaching and block scheduling (Bottoms, Presson, & Johnson, 1992).

Many alternative programs are competency- and performance-based; students are told the program objectives right from the start and know exactly what they must accomplish. By asking students to meet and demonstrate certain standards for each subject, a teacher is able to better assess what students know and are able to do before they graduate (Bottoms & Presson, 1991). Competency-based instruction also avoids comparisons between students, which can be crucial to building the self-esteem of those who have traditionally experienced failure in the classroom (Flora, 1989). In addition, competency-based instruction gives students many opportunities for success as they work through the list of objectives.

Unfortunately, designers of competency-based alternative programs often face bureaucratic difficulties in awarding a high school diploma to students who meet comprehensive objectives because many states require a certain number of hours of "seat time" per credit or require students to pass the GED exam. However, some discussions about reengineering high schools include discarding the Carnegie unit system and credit-based measurement of achievement in favor of competency-based assessment. Alternative schools may lead the way in this reform.

Essential Components of Effective Alternative Education Programs

- good relationships with teachers and peers
- a low teacher-student ratio
- a stable and dedicated staff
- student (and parent) choice to enroll in the alternative program
- basic skills instruction
- multiple methods of instruction appropriate to students' learning styles
- vocational training and/or employment assistance
- fair, consistent discipline
- help for students in obtaining health/social services
- attention to personal development and counseling needs of students
- parental involvement

(Bottoms & Presson, 1991; Butchart, 1986; Orr, 1987; Texas Education Agency, 1989; Weber & Sechler, 1988; Whalen, 1985)

Counseling is also an important component of alternative programs. Family problems, prior difficulties in school, low self-confidence, and other personal issues can interfere with a student's attempt to succeed in an alternative program (Brodinsky & Keough, 1989). Small-group counseling with peers allows students to see that others have similar problems. It also provides an environment where students can feel accepted, try out new behaviors, and observe how others address problems. Individual counseling can focus on a student's personal problems and concerns as well as career interests, academic strengths and weaknesses, progress toward graduation, and immediate plans after leaving school.

One-on-one mentoring also benefits at-risk students by providing a role model, individual attention, and encouragement to students. Orr (1987) recommends that counselors stay in touch with students after they leave a program so that counseling and support will not end abruptly just as graduates are seeking jobs or beginning postsecondary education.

Peterson, Bennet, and Sherman (1991) have identified eight common characteristics of effective teachers of at-risk students. Teachers of at-risk students

1. create a place of belonging and identity for students, help students find a place to fit in the program, and incorporate students' interests into instruction;
2. design and emphasize a specific academic program, showing students that classroom routines and measures of achievement are clearly defined by this academic focus;
3. are quick to interrupt academic work to deal with students' personal problems;
4. advise and coach students explicitly and talk to students about how to get along with others, solve problems, improve their behavior, and do better in school;
5. hold high expectations for students and demand hard work, emphasizing individual progress and publicizing successes;
6. have an identifiable theme for classroom work and emphasize one set of goals (e.g., cultural identity, good writing);
7. have prior experience and/or an identified capacity for working with at-risk students, as expressed by their empathy, compassion, insight, and sensitivity for students' lives; and
8. have small classes—no more than 12 students—so that they are able to individualize instruction and do their jobs well.

The point must be made—over and over again—that successful alternative programs usually have these essential components:

1. Academics on computer—self-paced programs that allow students to be successful, sometimes for the first time in their educational careers.
2. Counseling—these students have multiple problems that require services.
3. Marketable skills—give these students a skill to take to the work place.

Janice Mee
Past President, Florida
School Boards Association

To be most effective, teachers of at-risk students should have the opportunity to take counseling courses and professional development workshops on teaching at-risk youth. Coordination with mainstream teachers and support from the administration (especially in working with parents) are also necessary. In addition, teachers in alternative programs need the background knowledge of students necessary to target instruction and assistance appropriately and the time during the school day to advise students individually. Finally, an at-risk class should be a group of students with similar needs, not just a class of "problem students" thrown together to get them out of regular classrooms (Peterson, Bennet, & Sherman, 1991). Bottoms and Presson (1991) echo this last concern by stressing that alternative programs be evaluated on a regular basis to ensure that such programs are not "eroding into a means for warehousing 'undesirable' youth" (p. 24).

Alternative Schools-Within-Schools

Alternative programs are often located within a regular school to ensure that at-risk students receive the extra attention and non-traditional approaches they need to succeed as well as access to

- extracurricular activities and elective courses,
- vocational courses and equipment,
- support services such as office staff, career counseling, and hot lunch programs,
- a wider social environment for students, and
- support from other teachers in the school.

Perhaps the most important advantage of locating an alternative program within a traditional school, however, is that students remain in the larger school population and are less likely to feel labeled as failures than if they are removed from their home school. Even though students in a school-within-a-school are separated (preferably voluntarily) from regular classes, they can still participate in all other school functions—such as clubs, athletic events, and assemblies—while participating in a program designed to meet their individual academic needs.

Dynamite Idea

Teenage Parent Program

Recognizing Florida's high dropout rate and that a growing number of young people were not making successful transitions from school to productive adult lives, the Florida Legislature passed the Dropout Prevention Act of 1986. The Act increased state funding to enable school districts to provide special services and a lower student-teacher ratio in any of five categories of programs: educational alternatives, teenage parenting, substance abuse, disciplinary services, and youth services.

The Act was amended in 1989 to require all school districts to implement Teenage Parent (TAP) programs so that programs for young mothers could be continued and expanded. The amended Act states that a TAP program must provide instruction related to pregnancy, parenting, child care, transportation, health services, and social services to student mothers to encourage them to stay in school and complete the requirements for a high school diploma. Beyond these requirements, districts have considerable flexibility in the design and implementation of their programs.

Funding of child care for children of TAP participants is unique. The young children are assigned a student identification number, enrolled in an ungraded prekindergarten course, and generate the weighted cost factors just like at-risk students in other dropout prevention programs. In this case, however, the "student" may be as young as two weeks old.

Other goals of TAP include reducing the incidence of low birthweight babies, improving parenting skills of the teenage parents, and reducing the number of successive pregnancies during students' teenage years.

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Alternative Schools

Alternative high school programs are often housed away from the regular school, where they are unencumbered by traditional school buildings and policies. When alternative schools are located off-campus, the staff can create a very different atmosphere by locating in a nontraditional setting, designing the space differently, giving students responsibilities in the management of the school, using creative scheduling (such as block periods or night classes), developing new courses, and so on. A separate facility also avoids the stigma that may be placed on alternative students within a regular high school and enables students from a number of high schools to attend the program. However, a separate school excludes at-risk students from the rest of the student body and may become stigmatized as "the school for bad kids."

SCHOOL PROFILE:

Mauldin High School in Mauldin, South Carolina, has implemented a school-within-a-school for potential dropouts. The Mauldin Accelerated Program (MAP) allows students to work independently to complete courses more quickly than in the regular school setting. Self-paced competency-based instruction combined with assistance from teachers provides the motivation and support that students need to learn well and graduate.

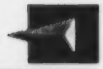
The staff of MAP consist of a math/science teacher, an English/social studies teacher, and a guidance counselor/program coordinator. Students' schedules with each teacher are coordinated with the electives they have chosen to take through the regular high school or the vocational school; therefore, MAP classes represent a mix of grade levels and subject areas.

Students and their teachers develop a contract for the work that must be completed for each course needed for graduation; this contract includes whatever objectives are required by the school district for mastery of the subject. Students are also expected to put in 120 hours of "seat time" per course, which is lower than the state's usual requirement of 170 hours. Thus, MAP students can move more quickly through a course than students in the traditional high school program by working at an accelerated pace to accomplish each of the objectives in their contracts (as long as they spend at least 120 hours on each subject). For example, if a student finishes tenth grade English by March, he or she can begin eleventh-grade English right away and perhaps finish it in summer school.

MAP also includes a number of supportive components to help at-risk students be successful:

- **Counseling**—The guidance counselor meets with individual students and conducts group counseling sessions bi-weekly to deal with personal and family problems. She also works with students on their future plans. The counselor keeps track of each student's progress toward graduation and uses a caring but direct approach when talking to students about how they are doing.
- **Parent Meetings**—Once a month, parents of MAP students are encouraged to come to a meeting/class designed to address parents' expressed concerns or interests, motivating children to work or using effective discipline. Parents also share advice with each other. MAP parents sign an agreement to attend the meetings and encourage their children to attend school and complete their work. *(See Appendix C for a sample of a parent agreement.)*
- **Summer School**—MAP students are required to attend a six-week summer session during which they continue working on the courses that they did not finish by June, take field trips as a group, and receive assistance obtaining summer jobs.
- **Peer Counseling/Tutoring**—Advanced students from Mauldin's regular high school program are invited to tutor and counsel MAP students for credit. These tutors attend a three-week training course and then work daily with MAP students on remediation and enrichment activities as directed by MAP teachers.
- **Mentoring**—Teachers at Mauldin, local business people, and community volunteers serve as mentors for students in the MAP program to provide them extra guidance and support.

Thirty-two students are served by MAP during the school year. Each one must meet at least two of the following at-risk indicators to participate:



- is behind one or more grade levels
- has more than ten absences in a year
- receives more than three disciplinary referrals in a year
- scores higher on standardized achievement tests than on class assignments
- has failed in three or more subjects
- does not participate in school activities

Upon approval for the program, students must sign an agreement to come to school, do their best academically, complete assignments, and behave cooperatively and responsibly (*see Appendix C for sample student agreement*). Once a student is in the program, he or she may stay until graduation. Many students are overage for their grade level; two twenty-year-old students graduated with the class of 1993.

Students say that MAP "gives you hope." Said one young woman, "I thought I didn't have a chance anymore. I missed too many days of school and that kept me back." Many admit that, without MAP, they would have quit school, especially those who were behind a few credits and did not want to spend another full year in school. The MAP students also show relief that they do not face the competition or peer pressure in regular classes. An evaluation of MAP showed that its students, compared to a control group, earned higher GPAs, passed significantly more courses, and participated in more extracurricular activities. MAP classes also had significantly fewer dropouts.

MAP teachers find this alternative program challenging and rewarding. Individual lessons and activities must be designed for each student, and learning must be made enjoyable for students who are hard to motivate. The English/social studies teacher explains that a major challenge is to improve their attitudes about school. Students are often threatened by a subject that they have repeatedly failed. Combined with low self-esteem and a lack of trust of teachers, this sense of failure can give students an "I don't care" attitude about school. To help motivate students, teachers are flexible about what students are asked to read, give credit for attending theater performances, and emphasize subjects that are relevant to students' lives, such as street law and psychology.

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SCHOOL PROFILE:

The School for Applied Individualized Learning (SAIL) in Tallahassee, Florida, was established in 1975 as an innovative alternative public high school with a holistic approach to educating at-risk youth. Its long-term goals for each student include personal growth and enhanced self-concept, improved interpersonal skills, respect for others, and mastery of basic skills and knowledge. Its curriculum enables students to meet all the requirements for high school graduation with a regular diploma. All courses meet the standards required by the district, and students are graded on the same scale as students in the district's regular high schools. In addition, SAIL has devised a number of innovative ways to motivate students and prepare them for their future careers, personal relationships, and responsibilities as citizens. The following are some of the innovative strategies used to help students succeed:

- **Block Scheduling**—To allow more time for field trips, class discussions, cooperative learning, and hands-on labs, most of the classes at SAIL meet for two hours every other day; students take six of these classes per year (an additional 50-minute class meets every day). This scheduling has also encouraged dual-credit team teaching for such courses as art/photography and writing/drama.

- **Intensives**—Each year, students and teachers work together to plan experiential learning activities that integrate and apply concepts learned in courses. Students choose the intensive theme that interests them the most—for example, marine biology at Cape San Blas, archeology in the Yucatan, or government in Washington, D.C.—and cooperate throughout the year to conduct research, make plans, and raise money for the trips. One week at the end of the school year is set aside for the intensives.

- **Environmental Science Magnet School**—In each grade, 15-20 students can participate in a mini-school at SAIL that focuses courses in each discipline on environmental issues. The environmental studies are enhanced by field trips to a local park, museum, marine science lab, and lands overseen by the U.S. Forest Service.

- **Emphasis on creativity**—Academic experiences are balanced with creative experiences, and students praise the art program. Despite its small size, SAIL offers drawing, painting, photography, drama, and guitar classes.

- **Flexible enrollment**—Students can combine their experiences at SAIL with enrollment in adult education programs, the vocational-technical school, or area colleges. Internships and community service experiences are also encouraged.

- **Family groups**—Students are divided into small, "family" groups that meet on a regular basis to discuss personal, interpersonal, and school problems.

The school emphasizes mutual respect, and students are pleased that teachers "treat you as a grown person." Practices at SAIL reflect this: everyone is addressed by his/her first name; individuality in dress is encouraged, and staff dress casually; student art work is framed and hung in the office; students are involved in school governance by helping set school rules,

disciplining and encouraging fellow students through a student court and student review board, discussing and making recommendations through a school-wide forum, attending staff meetings, and helping design their academic experiences; students are involved in hiring and reviewing teachers; teachers conduct self-evaluations and evaluate the principal; and weekly staff meetings, where everyone has input into the agenda, are part of a democratic administration.

The 210 students at SAIL are described by principal Roseanne Wood as people who are "seeking an environment in which they can learn and succeed and be accepted for who they are" (Wood, 1992). All students meet at least one of the criteria required for the school to receive dropout prevention funding (a history of excessive absences, failed classes, retention, or low standardized test scores or classification as gifted in ability but receiving low grades). However, students are not assigned to SAIL; they apply for acceptance by choice and are put on a waiting list. When a space is available, prospective students and their parents are interviewed, students attend SAIL for a five-day trial period, and they are accepted only after approval by the staff and other students. (Transportation to SAIL is provided by a shuttle bus that picks up students at their home schools.) Students earn the right to stay at SAIL by attending school, progressing through courses, and participating in school functions.

SAIL has been shown to increase students' attendance rates and grades and lower students' suspension and dropout rates. Students describe the positive results of attending SAIL: "I'm interested in learning and looking forward to my future," "I'm proud of myself," "Teachers and students show me they care about me as a person," "SAIL is one big friendship." Half of the 48 students who graduated in 1992 went on to college. SAIL has received a number of honors for its innovative work, including recognition from Phi Delta Kappa in 1991 as one of the 20 most unique and innovative alternative education programs in the country and from the Florida Department of Education as an exemplary dropout prevention program. SAIL is accredited by the Southern Association of Colleges and Schools and sponsored by the School Board of Leon County.

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GED PREPARATION

> When dropouts don't fit the mold of being teenage youth, either through spending too much time out of school, either working or unemployed, or through having children of their own, they tend not to return to the youth-oriented environment of high school.... The GED testing program recognizes adult learning modes and may well be more flexible and appropriate for those who have already taken on the adult roles of breadwinner and parent or who are less able to deal with the institutional aspects of high school. The GED gives these students an alternative, non-school route to demonstrate their attainment of the educational goals of high school.
>
> Andrew Kolstad and Phillip Kaufman, *Dropouts Who Complete High School with a Diploma or GED*, 1989

Many high schools looking for alternative ways to help students graduate are including preparation for the General Educational Development (GED) diploma in dropout prevention programs. The seven and one-half hour GED test requires extensive knowledge of writing, science, mathematics, social studies, literature, and the arts. Test administrators estimate that only seven out of ten graduating seniors would pass GED if they were to take it (American Council on Education, 1992). Preparation can include computer-assisted instruction and competency-based coursework as well as support services such as counseling.

Usually, only students who have officially dropped out of school are allowed to take the GED exam, and statistics show that many dropouts take advantage of the GED program to earn a high school diploma. Nearly 60 percent of GED certificates are earned by persons 17 to 24 years of age (SREB, 1992); almost one-third are under 20 (American Council on Education, 1992). In Kolstad and Kaufman's (1989) analysis of *High School and Beyond* survey data, almost 30 percent of tenth graders in 1980 who subsequently dropped out of school earned a GED certificate by 1986. Given such figures, SREB (1992) recommends that

> state policies should be based on the fact that the best time to help persons earn a diploma is while they are in school; the next best time is as soon as possible after they drop out. (p. 19)

As if in response to the above statement, the American Council on Education recently changed its policy to allow seven states, including Alabama, Florida, and Georgia from the SERVE re-

gion, to pilot a GED exit option for currently enrolled high school students. These students must be provided appropriate academic instruction—whether within regular classes or in a separate program—and counseling, and they may take the GED test only if their original graduating class has already graduated or is about to graduate (i.e., this program may not be used as an "early exit" option) (Florida Department of Education, 1990). Students of very low achievement are not served well by this alternative since the preparation materials and exam require competence beyond elementary school; the preparation programs are not meant to be remedial (Grise, Watters, & Bigbie, 1992). An analysis of a student's abilities and performance on practice tests is used to ensure that the student is likely to pass the exam.

Florida's GED for At-Risk Students program, which is currently available in 24 school districts, is designed for students who are participating in dropout prevention programs at their schools. While districts have some flexibility in implementing their programs, most are performance-based, use computer-assisted instruction, have low teacher-student ratios, and include vocational courses and work experiences so students will have career skills as well as a high school diploma when they complete the program. Most also allow students to take electives and earn credits for their coursework. As a result, students in some districts are able to earn enough credits to graduate with a regular diploma and find they do not need to take the GED exam. A number of districts offer instruction in evening or Saturday classes to accommodate students' work and/or child care schedules (Grise, Watters, & Bigbie, 1992).

An evaluation of the first two years of Florida's program found that students participate in the programs for many reasons: they are behind one or more grades, they are working a full-time job to supplement family incomes, or they have recently had children. Often, they are the students that no one seemed to notice before in classes. Grise, Watters, and Bigbie (1992), characterize students participating in the GED at-risk program as follows:

> If there is a common denominator among students in these programs, it is that they care about their future and are personally motivated to get done with secondary schooling. A responsibility was observed in many students which would characterize them more as adults than adolescents. They wished to get about their lives and go beyond the disenfranchisement many found in traditional high school programs. (p. 26)

SCHOOL PROFILE:

Eight school districts from six Mississippi counties have come together to provide services and an alternative education to students at risk. The Southeast Mississippi Regional Alternative Education Cooperative (SMRAEC), consisting of representatives from each district, was formed three years ago in response to a state mandate requiring all school districts to institute alternative educational programs for at-risk youth. Most of the SMRAEC districts were too small to fund adequate separate educational alternatives, so, with the help of a $10,000 planning grant from the Mississippi Power Foundation, they developed the Pine Belt Education Service Center, located in Laurel.

The districts own this alternative school together; they pay tuition for students they send to Pine Belt, and the school receives no direct funds from tax revenues. Each district is allotted a certain number of slots determined by its total student population. A district-level committee takes recommendations from schools and decides which students should be referred to Pine Belt.

Pine Belt serves approximately 160 at-risk students in grades 6-12. Eighteen students in 1992-93 qualified as severely learning-disabled. Most of the participating districts are rural, and some students are bused 25 to 30 miles to attend the Center. SMRAEC has employed these bus drivers as custodians, food servers, and teachers' aides during the day while they wait to take students back to their home districts.

Students may be referred to Pine Belt for school-related problems, such as repeated failure or excessive absences, or for personal problems, such as being victims of abuse, experiencing mental health problems, using drugs or alcohol, being pregnant, or attempting suicide. Most come to Pine Belt to "catch up"—to develop the basic skills necessary to succeed in high school or earn credits they need to graduate on time. Students can return to their home schools after completing a recommended program of study; or, if they are too far behind to finish their high school coursework by the time they are 21, they can participate in the school's GED preparation program. Pine Belt is planning to offer its own diploma in the future.

Instruction in English, math, science, and social studies is competency-based. Pine Belt has 120 computers, connected to a server, that provide individualized instruction in these and other subject areas. Students can work at their own pace through subjects. A block schedule at Pine Belt allows students to take two, two-hour classes and one, one-hour elective per day, thereby enabling a student to finish a year of English or math in one semester. Students in 9th-12th grades must meet a seat-time requirement (160 hours) for each course, but if they have already failed the course in the regular high school, they have fulfilled this requirement and need only to complete the objectives.

Pine Belt and the SMRAEC offices are housed in a renovated storefront. Each of four wings (for the four major subjects) has a computer lab and a classroom. There is also a wing of offices, an art room, and a cafeteria. The interior, with wide hallways and large rooms, looks little like a school. "We wanted to put students in a nice facility. This might be the nicest place they go all day," explains Dewey Blackledge, Superintendent of SMRAEC.

Other resources are also available to students at Pine Belt:

- A full-time social services coordinator helps students receive the social and health services they need, provides counseling, and deals with discipline problems. He tries to build personal, trusting relationships with students and makes a point of addressing each student by name every day.

- A Youth Coalition, consisting of representatives from the school districts, local social service agencies, universities, the United Way, local government offices, law enforcement, the health department, and others, helps coordinate services for students and their families and promotes the SMRAEC/Pine Belt building as a community center.
- A Teen Parent/Pregnancy Coordinator helps pregnant and parenting students receive services and counseling they need. At least 20 Pine Belt students and over 160 high school students in the Jones County/Laurel area are pregnant or parenting. Plans are underway to offer child care at the center.
- Student activities are encouraged at Pine Belt so students will take some pride and ownership in their school. The students chose school colors and a mascot, and there are several student organizations. Students can also participate in sports at their home schools.
- A mentoring program brings in business and professional people from the area to talk one-on-one with students about personal problems, school progress, and career goals.

Because SMRAEC represents eight districts, it was able to compete with large districts for state and federal funds. An Innovations in Education grant from the U. S. Department of Education brought in $600,000. Although this funding program has ended, Mississippi is providing funds to each district to help them comply with the mandate for alternative education. This money, combined with funds from participating districts in SMRAEC, is sufficient to maintain the Center.

Pine Belt faced negative perceptions when it was first funded and looking for a site. Community residents saw the facility as a school for "bad" kids who might be dangerous to the community. In response, the superintendent emphasized that it was a great opportunity for economic development in Laurel: an abandoned building in the downtown area would be renovated and occupied, and approximately 30 new jobs would be created. The local newspaper and a television reporter who serves as a mentor at Pine Belt have provided positive publicity for the school.

Pine Belt students attend the school an average of 85 percent of the time, as compared to 70 percent in their home schools. Students report that teachers are interested in them and do whatever they can to help students complete their work and plan for the future. Students feel that teachers show them respect and trust; "they really do care about us," said one student. The separate facility is also a comfortable place for students to learn. As one student pointed out, "Here you're not an outcast; everyone has problems."

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Superintendent
SMRAEC
Post Office Box 6441
923B Sawmill Road
Laurel, MS 39441
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Principal
Pine Belt Education Service Center
Post Office Box 6441
923B Sawmill Road
Laurel, MS 39441
(601)649-4141

Despite their eagerness to finish high school, most students admitted that having the opportunity to march across the stage at graduation with their peers was important to them and a major motivating factor in their completing the program.

In GED programs, teachers counsel students' career plans and personal problems, providing students an average of four hours of counseling per week. According to Grise, Watters, and Bigbie (1992), thirteen of the districts provided support for these teachers through

- special materials,
- inservice training on counseling strategies,
- monthly meetings with the school psychologist,
- crisis intervention training,
- assertive discipline training,
- anger management information, and/or
- training on suicide prevention.

Even with the diversity of students served and the variety of methods used to prepare them for the GED exam, the evaluation indicated that the programs have been very successful:

- Of the 748 students in the first year, 186 took the GED test and 80 percent passed; 138 dropped out of school, but the remainder stayed in the GED preparation program for another year.
- In the second year, 409 students graduated with either a GED diploma or a regular high school diploma, 608 stayed in the program for another year, 242 dropped out of school, and 272 transferred to another program or school or returned to the regular high school program.
- Follow-up with the first year's GED graduates found that a higher percentage were employed than were regular graduates or dropouts. They were also earning more money at their jobs than the other two groups; this was most likely due to the vocational instruction that was included in their programs (Grise, Watters, & Bigbie, 1992).

Dynamite Idea

Performance-Based Diploma Programs

Vero Beach (Florida) High School is trying to prevent and retrieve student dropouts through its Performance-Based Diploma Program located within the school. Graduation from the program is based on competency in basic subjects and a vocational field as determined by (1) a passing score on the state High School Competency Test, (2) a passing score on the GED exam, and (3) certification by a vocational teacher that the student possesses proficiency for employment in a vocational area. The approximately 250 students in this program are helped to reach these goals through computer-assisted instruction in basic subjects, vocational classes, and counseling.

Each student spends two to three hours a day in a computer laboratory working at his or her own pace on appropriate levels of computer software. A classroom teacher/counselor provides instruction in various subjects, teaches employability skills and stress management, and communicates regularly with the students' parents. At least two more hours of the students' day are spent in vocational classes in such areas as carpentry, health care, drafting, or business. Students also spend three to five hours per week in small group counseling sessions with a guidance counselor where they discuss their academic progress, future plans, and personal problems; a mentoring component is available for interested students. In addition to these requirements, ninth and tenth graders in the program have time in their schedule to take electives through the regular high school program. Students can earn credits for the courses they complete while in this alternative program—so that they can return to the regular high school program if they wish—but credits are not required to graduate from the Performance-Based program. The high school also provides evening classes for students who cannot participate in the program during the school day.

In the 1990-1991 school year, the fourth year of the program, 84 percent of the students in the program remained in school throughout the year, and 88 percent of those taking the GED exam passed it on the first or second attempt. Forty-five students graduated, and 207 were still enrolled at the end of the school year. The Performance-Based Diploma Program has been recognized by the Florida High Tech Committee as one of six outstanding vocational programs in the state and by the Southern Association of Colleges and Schools as one of ten exemplary educational programs in the region.

For more information, contact:
Judy Jones, Coordinator
Performance-Based Diploma Program
Vero Beach High School
1606 Fighting Indians Way
Vero Beach, FL 32960
(407)778-7000 or -7062

Source: School District of Indian River County, 1991.

Dynamite Idea

Performance-Based Diploma Programs, continued . . .

The Muscogee County School District, in Columbus, Georgia, has a performance-based diploma program that serves over 500 dropouts or potential dropouts who are overage for their grade level or who must work to support their families. Students must pass the GED test and complete the equivalent of six credits in a vocational field to earn a diploma. Computer-assisted instruction and counseling help prepare students for the GED exam. As a result of this program, the district's dropout rate decreased from 20 to 10 percent and all senior participants in 1992 passed the GED test.

For more information, contact:
Dr. Nancy Sargent
Assistant Superintendent for Instruction
Muscogee County School District
1532 Fifth Avenue
Columbus, GA 31901
(706)649-0568

Source: SREB, 1992

Section

3

INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION

- Eliminating the General High School Education Track
- Activities for Integrating Academic and Vocational Education
- Providing Work Experiences
- Providing Educational and Career Counseling

INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION

> Students who enroll in general . . . studies in high school are too often overlooked and under-educated. They are routinely denied the focus and attention that college preparatory students receive. Instead, they are fed a diet of "basic" and "general" courses that qualify for a diploma but fail to prepare them for life and work.
>
> *High Schools that Work*, SREB, 1993, p. 1

The ultimate goal for students is not just to graduate from high school but to be well prepared for the next step in life, whether it is finding a good job, enrolling in a postsecondary educational program, or both. Section Three discusses ways to better prepare students for their futures, including eliminating the general high school track, providing work experiences for students, and improving educational and career counseling.

ELIMINATING THE GENERAL HIGH SCHOOL EDUCATION TRACK

Like the kudzu that now engulfs the South, ability tracking seemed like a good idea when it was introduced; students of equal abilities are grouped together so instruction can be tailored to meet their needs and skills. A primary impetus for tracking was that advanced students would do better if given more advanced instruction. Research has shown, however, that students at all ability levels generally perform no better in schools with ability tracking than in schools without it (Oakes, 1992; Slavin, 1990). In addition, Reihl, Natriello, and Pallas (1992) have found that the tracking process itself--the procedures through which students are assigned to various academic tracks--depends more on "political and administrative processes" than on students' "ability, academic performance, and interests" (p. iii). It is time to reexamine this issue and find other alternatives.

Innovative high schools are increasingly realizing that a general diploma is a meaningless option for students and should no longer be offered. The general track provides a random selection of mostly unchallenging courses, prevents students from mastering complex tasks, communicates low expectations, and results in a course of study that is unconnected to the demands of students' future lives. Unfortunately, it is often the "easy way out" for students who have received no encouragement to go to college and do not believe that vocational courses have anything to offer them. Approximately one-third of all high school students are currently in the general-diploma track (Bottoms, Presson, & Johnson, 1992).

Dynamite Idea

Gold Seal Diploma Endorsements

School districts in Florida may offer students the opportunity to earn the "Gold Seal Endorsement" with their high school diploma. To qualify for the Gold Seal, graduating seniors must have at least a 3.0 unweighted GPA and an unweighted vocational GPA of 3.5 or above. They must also complete a job preparatory program and pass a written and performance test of job skills.

Gold Seal graduates are eligible to apply for a $2,000 per year scholarship for four years at any public or private community college, university, or technical school in Florida.

(Source: Florida Department of Education, 1992a)

Damico and Roth's (1991) study of high school students enrolled in the general track found that

> the quality of the experiences at school of general track students was generally ignored by school officials because such students presented few problems or demands. They did persist in coming to school even though they found their classes boring and their participation in school activities obstructed. (p. 14)

Student services in the schools they studied were organized to serve students who were college bound, had behavioral problems, or were enrolled in dropout prevention programs, leaving general curriculum students to fend for themselves. Their research also shows that students in the general track had less focus for the future and felt more alienated from school than their peers in academic or vocational tracks (Damico et al., 1990).

The most common alternative is to offer only college preparatory and vocational/technical degrees, or a combination of both. *(Appendix D offers examples of course requirements for each of these diploma tracks.)* Parnell (1985) recommends three degree tracks: a college-prep track for students who plan to get a baccalaureate degree, a tech-prep track for students who plan to get an associate degree, and a vocational track for students who plan to go immediately to work after graduation.

Another option that some schools are trying is to focus degrees on broad occupational expectations such as repair and design, organizing and managing data and information, or working with people. ("Career clusters" will be discussed in greater detail later in this section.) Whatever the diploma option, however, all should include demanding courses in mathematics, science, and language arts so that all students develop a strong academic background.

The SREB-State Vocational Education Consortium recommends that all high school students take at least three courses in mathematics and three courses in science; two in each subject should be equivalent in content to college preparatory courses. They also recommend that all students take the same demanding English courses that are traditionally taught only to college-bound students; use of the same textbooks and literature as in college-prep classes and frequent writing assignments has been shown to motivate non-college-bound students. Teacher or peer tutoring, extra background information for literature assignments, access to a resource center with computers for individualized instruction, and other assistance can be provided for students who have trouble mastering the uniform curriculum. Interviews with graduating seniors from schools with such a curriculum confirm that students want to be challenged and are more interested in courses that expect hard work (Bottoms, Presson, & Johnson, 1992).

SREB-State Vocational Education Consortium

In 1985, the Southern Regional Education Board (SREB) began collaborating with state vocational leaders who wanted to integrate academic and vocational studies in high schools. Together they created the SREB-State Vocational Education Consortium. Each state supports at least two pilot sites working to integrate the curriculum and to improve the mathematics, science, and communication achievement of students enrolled in general and vocational tracks. By 1992, the Consortium included 19 states and 100 schools, and it is still growing. These schools are

- establishing higher expectations for all students,
- revising academic courses to make them more relevant and more demanding,
- revising vocational courses to integrate more academic concepts,
- revising instructional practices in all classes to actively engage students in the learning process,
- encouraging academic and vocational teachers to work together,
- requiring all students to take college-preparatory courses in mathematics and science, and
- providing the counseling and academic assistance students need to succeed in school and plan for their futures (Bottoms, Presson, & Johnson, 1992).

Many participating schools are also phasing out the general track altogether as they emphasize vocational preparation and a strong academic background for all students.

SREB offers technical assistance and information to help schools with the change process:

- developing a site-based action plan,
- offering staff development workshops,
- designing new curricula,
- building teaching teams, and
- conducting evaluation of student achievement and the progress of reforms.

SREB also disseminates information about successful practices between participating schools and holds meetings and conferences to help schools find solutions to common problems (SREB, 1993).

The schools in the SREB-State Consortium are still in a process of change. As Bottoms, Presson, and Johnson (1992) point out, "The most difficult barriers to overcome are the beliefs, attitudes, and traditions of an educational system that organizes the high school curriculum into different levels of instruction and separates students into the college-bound bright ones and 'the others'" (p. 13). Despite the challenges, however, an evaluation of eight pilot sites showed significant progress after only two years. Comparing average scores of college-preparatory students and students in the revised vocational/academic programs, SREB found that the pilot sites making the greatest gains closed the gap in reading by 89 percent, in mathematics by 36 percent, and in science by 75 percent. Students in these schools reported that their courses were more challenging. Their vocational teachers more often stressed reading and mathematics, and students took more math and science courses. They received more help from teachers and spent more time on homework than before the schools changed their instructional approaches and expectations.

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In addition to high expectations and demanding coursework for students, all students must be helped to see connections between their present and future life experiences and information they are expected to learn in school. Teachers will be more successful at motivating students if they can answer students' basic questions of "Why do I need to know this?" and "How will I use this?" (Bottoms, Presson, & Johnson, 1992). Applied or technical academic courses that emphasize the application of concepts to "real world" situations are becoming more and more prevalent in high schools and are helping shape future diploma options. Applied academics use a student-centered, active approach to learning, characterized by group discussions and projects, laboratory experiments, and student presentations that help clarify new concepts (Bottoms, Presson, & Johnson, 1992). Efforts to link this instruction to work can include using materials taken or adapted from actual work settings, such as technical manuals, job orders, and instructions for instruments and equipment, or inviting guest speakers representing blue collar and professional careers.

Although revising the academic program is important when a school eliminates the general track, vocational programs must also be evaluated and updated to accommodate students with a diversity of career interests and to link academic learning with technical skills (Bottoms, Presson, & Johnson, 1992). Thus, a school that offers only two diplomas finds that academic and technical knowledge begin to blend across the curriculum.

To make learning experiences more relevant to the future of all students, high schools are increasingly integrating academic and vocational instruction. The intent of such integration is to blend these two halves of the curriculum so that the focus of teaching and learning is no longer separated into "head versus hand" or "theory versus practice." Instead, students will learn concepts and skills at the same time and understand how knowledge is used in "real-life" situations. Vocational courses become more sophisticated by making explicit the academic concepts involved in the skills being learned, and academic courses become more engaging by connecting theories and facts to workplace and life skills. In this way, students who have not previously thought themselves to be college-bound may find academic classes more interesting and be prepared to continue their education if they wish. At the same time, college-bound students may be enticed to take vocational courses that can clarify academic concepts they are learning, allow them to explore career interests, and prepare them for work opportunities. An additional benefit of such curriculum integration is reducing student tracking:

> Some schools which have integrated vocational and academic education claim to have reduced the segregation of students into distinct vocational and academic groups—with the segregation by class,

If we are . . . serious about meeting that great range of individual differences . . . instead of permitting half our students to slip through the "general education" crack we must cultivate a goal-oriented educational-program diversity to match the diversity of the student body and levels of preparedness. . . . We must reject the idea that excellence can be found only in certain university-oriented programs or in preparing for certain professions.

Dale Parnell, The Neglected Majority, 1985

race, and ethnicity which always accompanies such tracking.

> (Grubb, Davis, Lum, Plihal, & Morgaine, 1991, pp. 89-90)

An especially important benefit for students at risk of dropping out is the possibility that vocational courses that are made more academically rigorous could meet state course requirements for graduation (Stasz & Grubb, 1991). Smith and Ament's (1990) review of research on vocational education and high school dropouts suggests that at-risk students are more likely to stay in school if they are offered a variety of occupational courses at least by grade 10. If these students are allowed to take basic academic requirements only in the early high school years, they are more likely to drop out by 11th grade (when they are legally old enough) than if they are exposed to vocational courses early in their high school careers. Although at-risk students who complete high school report that access to vocational programs was a main reason they remained in school (North Carolina Department of Public Instruction, 1989), and dropouts are much less likely to have taken job-specific vocational courses than at-risk students who complete high school (Weber, 1986), many states have raised basic course requirements in mathematics and science to the point that students are unable to fit more than one or two vocational courses into their schedules.

Allowing students to substitute vocational/academic courses for academic requirements may induce more students to finish their high school education. Vocational teachers must remember, however, that integrating academic instruction into their courses must go beyond review-and-practice activities that have already "turned off" at-risk students in regular classes (Bottoms, Presson, & Johnson, 1992). Instead, students can be helped to discover the mathematics, science, and communication skills underlying the vocational activities they are mastering. At the same time, however, successful integration will also result in academic courses—taught as applied academics—that are engaging and relevant enough to keep at-risk students interested.

Students who enter the work force immediately after high school will also benefit from an integration of academic and vocational education. As one principal working with the SREB-State Consortium pointed out,

> [Non-college bound students] need high-level academic skills the day after graduation, not four years later.... Unlike students who plan to go directly to a four-year college or university, these students do not have the luxury to wait before putting their knowledge to work on the job.
>
> (Bottoms, Presson, & Johnson, 1992, p. 131)

Dynamite Idea

New Math

In the summer of 1991, teachers and administrators at Pebblebrook High School in Mableton, Georgia, eliminated general mathematics and replaced it with 12 sections of algebra or applied mathematics. Mathematics teachers attended workshops on applied methods and worked with vocational teachers to plan the applied courses. In addition, the parents of every student who had originally enrolled in a general math course received a letter from the principal asking permission to re-enroll their child in a higher-level course.

Parents supported the changes, teachers discovered that these students could master complex content if taught through hands-on methods, and students reported that they enjoyed mathematics class more than they had before. Grades in mathematics classes have improved and failures in mathematics have declined. Also, the applied methods have spilled over into other mathematics courses such as geometry and trigonometry.

For more information, contact:
Kay Jackson, Principal
Pebblebrook High School
991 Old Alabama Road
Mableton, GA 30059
(404)732-5658

Source: SREB, 1992.

Dynamite Idea

Eliminating the General Track

Canton High School in Canton, Mississippi has taken the advice of the SREB-State Vocational Education Consortium and upgraded its graduation requirements to include four courses in mathematics and three in science, with two classes in each subject at the college-prep level. In addition, Canton High has eliminated the general track; students must either complete the requirements for a college-prep diploma or a vocational studies degree.

To help students learn more challenging material and meet the demanding requirements, Canton has established before- and after-school tutoring, Saturday study sessions, and a computer lab to provide individualized remediation. An average of 75 students come for tutoring on school days and 100 usually attend the Saturday classes.

For more information, contact:
Huey Porter, Principal
Canton High School
529 North Mace Street
Canton, MS 39046
(601)859-5325

Source: SREB, 1992.

SCANS

The U.S. Secretary of Labor and the Secretary's Commission on Achieving Necessary Skills (SCANS) examined the demands of the workplace and determined what young people need to know to meet those demands. SCANS sought to answer the question, "What are the skills required to enter employment?" Research conducted by SCANS included discussions with company owners, public employers, unions, and workers and managers in businesses all over the country. The universal message heard from these groups was "good jobs will increasingly depend on people who can put knowledge to work" (SCANS, 1991, p. xv). Specifically, SCANS compiled a list of competencies and foundation skills that all high school graduates—whether they are headed directly to work, college, or the military—need to know to "make their way in the world" (p. vi). These recommended competencies and skills have received positive attention and are guiding the reform efforts of state departments of vocational education, high schools in the SREB-State Vocational Education Consortium, and schools implementing applied academics, tech-prep programs, and work apprenticeships.

According to SCANS (1991), effective workers are competent in using the following:

- Resources—allocating time, money, materials, space, and staff
- Interpersonal Skills—working on teams, teaching others, serving customers, leading, negotiating, and working well with people from diverse backgrounds
- Information—acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information
- Systems—understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems
- Technology—selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies

To develop these competencies, students and workers need the following foundations:

- Basic Skills—reading, writing, arithmetic and mathematics, speaking, and listening
- Thinking Skills—thinking creatively, making decisions, solving problems, knowing how to learn, and reasoning
- Personal Qualities—individual responsibility, self-esteem, sociability, self-management, and integrity

Dynamite Idea

North Carolina Vocational Competency Achievement Tracking System (VoCATS)

As a result of the legislative mandates in the North Carolina School Improvement and Accountability Act of 1989 and the Perkins Vocational and Applied Technology Education of 1990, schools in North Carolina needed to develop mechanisms to gather and report reliable and valid information about student performance in vocational education. The Vocational Competency Achievement Tracking System (VoCATS) was established to help local school systems acquire this information. Data on the current level of student performance in technical and vocational education is gathered as a baseline for setting performance goals; comparable data is then compiled annually to determine if milestones have been reached.

VoCATS is a competency- and computer-based instructional management system that allows the collection of data on student performance prior to, during, and following instruction. Data are in the form of competency mastery status, pre- and posttest scores, and gain scores. Information gleaned from these data are then used by local school administrators and vocational and technical educators as an instructional management tool to document student gains and to demonstrate competency mastery.

The VoCATS curriculum package includes the following materials:

- A weighted course blueprint that lists the competencies and objectives for the course and indicates the relative importance of each. Blueprints are developed by teams of teachers with input from business and industry representatives.
- A competency-managed Competency/Test Item Bank developed in North Carolina and tied specifically to the competencies and objectives from the blueprint.
- A curriculum guide, also keyed to the blueprint, that provides detailed information on units of instruction, including resources and instructional and evaluation strategies. The guide includes suggestions on integrating related basic skills and higher-order thinking skills and for working with special populations.

For more information, contact
Division of Vocational & Technical Education Services
301 N. Wilmington Street
Raleigh, NC 27601-2825
Fax (919)715-1628

Research has found that businesses focus much of their employee training on skills that students ought to know when they graduate from high school, such as problem solving, working in teams, writing, speaking, listening, and setting goals (Northdurft, 1990). In addition, preparation for the present and future workplace will require an education that provides broad occupational skills rather than narrow job preparation (Gray, 1991). Just as the SCANS competencies suggest, research clearly indicates that a useful vocational education must incorporate thinking and academic skills. Also, since more and more students are encouraged to pursue postsecondary education of some kind, and most college students must work at least part-time to afford to go to school, a balance of job skills and academic skills is clearly necessary preparation for all students.

Also, any vocational education programs that receive funding through the Carl D. Perkins Vocational and Applied Technology Education Act are now required (due to amendments that went into effect in July, 1991) to integrate academics into their instruction to continue receiving federal funds (Beck, 1991).

An important first step in making this integration work is to change the attitudes of students, parents, and educators about vocational-technical education. Vocational education has been viewed as "second class" since the 1917 Smith-Hughes Act (which provided federal support) first defined it as preparation for occupations that did not require a bachelor's degree (Rosenbaum, Stern, Hamilton, Hamilton, Berryman, & Kazis, 1992). To counteract this view, schools must emphasize to students, teachers, and counselors that all students can benefit from some vocational coursework, especially when it is revised to include more academic instruction. Vocational classes are another way to learn the same concepts that are taught in strictly academic classes, and students will have a better chance of finding a well-paying job if they leave high school with some vocational skills.

Developing teams of vocational and academic teachers is important for curriculum integration. The box on the following page describes some of the ways teachers can work together to give students a balance of academic and vocational preparation.

Schools in the SREB-State Consortium that have successfully used team-teaching stress the need for frequent communication, joint planning time, joint staff development, visits to each other's classrooms, and interdisciplinary problem-solving activities (Bottoms, Presson, & Johnson, 1992). Summer meetings can bring vocational and academic teachers together to plan for the coming year; this is especially helpful when joint activities are limited by the location of vocational programs in a building separate from the high school. Teachers can also observe at other schools where successful integration is taking place. To aid in the transition to an integrated

curriculum, teacher preparation and licensing may need to be revised to assure that academic teachers develop applied teaching skills and vocational teachers have the necessary academic background (Bottoms, Presson, & Johnson, 1992; Gray, 1991). Teachers' knowledge of the demands of the workplace can also be strengthened by visits to or summer internships in local businesses (Presson & Bottoms, 1992).

TEACHER ACTIVITIES FOR VOCATIONAL AND ACADEMIC INTEGRATION

- Share successful instructional approaches for specific concepts.
- Share equipment and materials between classrooms.
- Exchange students for a lesson or unit. For example, in a high school in Wisconsin, agriculture students studied cross-culturing, biotechnology, and ethical issues with the biology teacher while biology students studied water quality with the agriculture teacher.
- Speak in each other's classes.
- Focus on similar themes during the same month in different classes, such as studying the stock market in business and the Great Depression in history.
- Design new, team-taught courses that combine vocational and academic instruction.
- Use block scheduling or back-to-back class periods with the same students to allow for joint planning of longer laboratory projects, field trips, and group work that integrates theory and practice.
- Relocate classrooms so vocational and academic classes are physically integrated.
- Assign joint projects that allow students to receive credit in both an academic and a vocational course.
- Design a comprehensive senior project that requires students to use skills and concepts from a variety of academic and vocational courses, including mathematics and writing.

(Bottoms, Presson, & Johnson, 1992; Florida Department of Education, 1992b; Schmidt, 1992)

Dynamite Idea

Teacher Activities

Vocational and academic teachers at Hoke County High School in Raeford, North Carolina, meet regularly during the school year and for one week during the summer to plan learning activities that integrate academic concepts and workplace skills. For example, students in English write directions for job-related activities, and vocational students are required to write something each day.

Mathematics teachers visit vocational classes to discuss the use of mathematics concepts in particular careers, biology and chemistry teachers are team-teaching with home economics and health services teachers, and horticulture and mathematics teachers have developed joint projects for students.

Such collaboration has improved scores on mathematics and science final exams, induced the majority of vocational students to take at least three years of high-level mathematics and science courses, and helped decrease the number of dropouts from 173 in 1990-91 to 77 in 1991-92.

For more information, contact:
Jeff Moss
Vocational Director
Hoke County High School
Bethel Road
Raeford, NC 28376
(910)875-2156

Source: SREB, 1992b.

Dynamite Ideas

Reengineering by Committee

Summerville High School in Summerville, South Carolina, has developed committees of academic and vocational teachers, counselors, administrators, and business leaders to reengineer the educational experiences of vocational students.

Committees discuss issues of curriculum, evaluation, guidance, and public relations and have planned a number of staff development workshops to build understanding and communication between teachers at the high school and the local career center. As a result, many more students are taking higher-level English, applied mathematics, and applied biology/chemistry; teachers and students are realizing that vocational students can succeed in demanding courses; and the school plans to eliminate all general math and science courses in the near future. In addition, school attendance has improved, and students are excited by classes that allow them to learn by doing.

For more information, contact:
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Director of Secondary Education
Dorchester School District #2
102 Greenwave Boulevard
Summerville, SC 29483
(803)873-2901

Source: SREB, 1992.

Business/school partnerships are especially beneficial when high schools are attempting to integrate academics and vocational preparation. Companies can offer learning apprenticeships, workshops, and tours for groups of students or teachers to help them make connections between what they are learning and teaching and the daily realities of the work place. Business people can serve on school committees revising the curriculum or improving career counseling. They can also assist with class projects and participate in mentoring programs for students with career interests similar to their professions (Bottoms, Presson, & Johnson, 1992).

ACTIVITIES FOR INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION

Although a few teachers acting independently or together can successfully implement a number of activities to integrate academic and vocational education, school-wide initiatives are also a possibility. Three of these are discussed below.

Tech Prep

"Tech Prep" is the term for a popular educational track, parallel to the college-prep track, that combines applied academics and vocational courses and prepares students for enrollment in a technical or community college after graduation. It can serve as a better substitute for existing general and vocational diplomas and is appropriate for students who plan to enter the work force immediately after high school. The "tech" in Tech Prep refers to preparing students for technical jobs that

- are in high demand,
- allow advancement into higher-paying positions requiring more complex academic and vocational skills,
- require the use of new and emerging technologies,
- require postsecondary education and training, and
- will require updated training throughout the employee's career for continued advancement

In addition to more demanding requirements in the basic subjects, Tech-Prep students often take at least four credits in a vocational major and at least two credits in related vocational courses, such as a basic computer course (Bottoms, Presson, & Johnson, 1992). Dale Parnell, professor of education at Oregon State University and the "father" of Tech Prep, explains that, because of its integrated curriculum, "In no way does Tech Prep limit or pigeonhole stu-

dents. Designed for rigor and flexibility, Tech Prep provides many opportunities for movement between the college prep and Tech Prep career paths" (Parnell, 1993, p. 7).

Tech Prep is often described as a "2 + 2 program," which refers to its link with postsecondary education. It can be designed so that students plan their last two years in high school in conjunction with their first two years in college. Other programs are 4 + 2 (emphasizing careful planning throughout one's high school years) or 4 + 2 + 2 (emphasizing completion of a bachelor's degree). SREB (1992) found that many vocational students continue their education after high school. In a survey of 1,000 vocational graduates, 48 percent had enrolled in some form of postsecondary education within one year of graduation. However, 80 percent were working full- or part-time; this reiterates the importance of preparation for both work and postsecondary education. *(See program profile on p. 65.)*

Communication and joint-planning between high schools and local community and technical colleges are necessary for tech-prep programs to serve students effectively. Tech Prep consortia can include vocational and academic teachers at the high schools and colleges, administrators, business representatives, guidance counselors, parents, and others. Written agreements on the following issues can help ease students' transition between high school and college (see box below):

Strategies for Integrating Tech-Prep Courses with College-Level Education

- The courses and skills to be taught at each level of education can be articulated so that duplication of course work is avoided.
- Vocational students may be allowed to transfer basic course credits to the technical college and move directly into advanced classes.
- High school students (and their parents) can be invited to visit local colleges to become familiar with facilities, meet faculty, and ask questions of students from their high school now attending college.
- Automatic admission to the postsecondary institutions can be granted to students who have completed the agreed upon tech-prep high school program.
- High school seniors may be able to enroll in the community or technical college half time while they finish their secondary school requirements.
- Joint professional development activities can be provided to teachers at the high school and college levels to assure that everyone is using effective instructional strategies and to allow teachers to share ideas.
- A common evaluation of students can be planned to help improve education at both levels as they move through the program.

(Lankard, 1991; North Carolina Department of Public Instruction, 1992; Parnell, 1993)

Science/Math Integration Through Applied Academics
Central High School, Phoenix City, Ala.

The Science/Math Integration Through Applied Academics program at Central High School applies the principles of Tech Prep, the federally funded initiative designed to promote technology education. The program is designed to meet the needs of students with a variety of learning styles. The student-centered approach includes cooperative learning to strengthen each student's ability to collaborate and communicate technical concepts. Instruction features "real world" applications designed to expand students' knowledge and prepare them for future job opportunities in mathematics and related fields. The new applied curriculum in mathematics, biology, chemistry, communications, and physics presents college prep competencies such as algebra, problem-solving skills, and critical-thinking skills in "average" classes.

The successful implementation of the new curriculum has been due in large part to the extensive staff development designed to help teachers adapt to the new teaching styles, focus more on practical applications than theories in their courses, and practice team-building strategies. An outgrowth of the team-building seminars has been the development of interdisciplinary projects involving teachers and students from academic and vocational areas.

Since the introduction of Tech Prep and the new applied courses, enrollments in mathematics and science courses at Central High School have been rising steadily; 82 percent of the students now take science, and 98 percent of the students are enrolled in a mathematics class.

For more information, contact: William G. Hayes, Principal, Central High School, 2400 Dobbs Drive, Phoenix City, AL 36867; (205)298-3626

Interdisciplinary Instruction

Agriculture, English, and science teachers at Swain County High School in Bryson City, North Carolina, are collaborating to help students master complex academic concepts through cross-disciplinary projects. The teachers meet as a group to plan projects for the students they have in common and to explore ways to integrate academic concepts into the agriculture classes. For the projects, students are required to use chemistry concepts to study agricultural issues, read and discuss technical manuals, and write a report that meets standards set by the English teacher. Students receive credit for the project in all three classes.

For more information, contact: Jim Gribble, Agriculture Teacher, Swain County High School, P. O. Drawer FF, Bryson City, NC 28713; (704)488-2152

Source: SREB, 1992.

Career Academies

A career academy is a school-within-a-school that focuses on a specific occupational area—such as business, electronics, computing, health, finance, media, or teaching—and incorporates related part-time work opportunities into the learning experience. Schools can design a number of different academies within the same building, each staffed by four teachers: one each for math, English, science, and the core vocational subject. Students in the academy take all four subjects from these teachers as a group and stay together for two or three years. Academic concepts in each class are applied to issues and skills involved in the occupational focus (Grubb, 1993). The work experiences may take place during the school year and/or in the summer and are supervised by instructors and employers. In Oakland, California, students in a career academy program were more likely than other students in school-sponsored work experiences to report that

- they use reading, writing, and mathematics skills on the job,
- learning in school has helped them do better on the job,
- learning on the job has helped them do better in school,
- school has made them realize how important it is to learn to do well at one's job, and
- their jobs have made them realize how important it is to do well in school (Rosenbaum et al., 1992).

Research also shows that academy students are less likely to drop out of school, earn higher wages in jobs after graduation, and are more likely to continue their education after high school than a similar group of non-academy students (Northdurft, 1990).

Career Clusters or Majors

Some high schools have eliminated traditional departments and reorganized around occupational themes such as communications, construction, human services, and technologies. These themes are meant to be broad so that students do not limit their learning to a specific career. Each theme encompasses many kinds of jobs–from those that require no postsecondary education to those requiring advanced degrees (Rosenbaum et al., 1992). Teachers in each cluster can focus instruction in their subjects on the occupational area. These schools usually expect students in 10th or 11th grades to choose a "major" or "career path" that includes academic requirements and vocational courses. This choice allows field trips, mentoring programs, and internships to be targeted to career interests (Grubb, 1993). Occupational magnet schools, in which the whole school is focused on a broad occupational area, are also emerging (Stasz & Grubb, 1991).

Such school-wide innovations as those described above can lead to reengineering of the school. Grubb (1993) summarizes some of the comprehensive changes that can take place when the whole school integrates vocational and academic education:

Dynamite Ideas

Dual Enrollment

Students in Alachua County, Florida, can take college-level academic and vocational courses while still in high school through Santa Fe Community College's Vocational Dual Enrollment Program. An agreement between the school district and the college makes it possible for over 300 11th and 12th graders to accelerate their progress toward a vocational certificate or associate degree. The program helps students maintain the motivation to finish high school, connect content in their high school courses with occupation-related learning, and make a smoother transition to college.

Over 30 courses from Santa Fe's Technology and Applied Sciences program are offered to high school students in such areas as business, computer science, nursing, electrical wiring, and medical technology. The program has become so popular that it now cannot accommodate all the interested students.

For more information, contact:
Jim Galloway
Santa Fe Community College
3000 N.W. 83rd Street
Gainesville, FL 32606
(904)395-5792 ext. 5792

Source: Florida Department of Education, June 7, 1993.

- The experience of the "shopping mall high school" is replaced with a more focused, coherent sequence of high school courses.
- Instruction is improved in all courses as teaching becomes more student-centered and learning becomes more active and cooperative.
- Students become more engaged in schooling that involves them and is relevant to their future interests and concerns.
- Teacher isolation is reduced when teachers are expected to cooperate.
- Student tracking and segregation are less prominent as students from different backgrounds and with varying abilities are brought together around shared occupational interests.
- Students maintain options for their future by preparing for both work and postsecondary education and by focusing on a broad career topic rather than specific entry-level jobs.
- Career guidance and counseling are improved for all students because more resources and time must be devoted to helping students make wise curriculum choices.

Of course, schools undergoing such integration will want to inform students of curricular changes and the reasons for them. Students planning their first year's coursework will need to know all the options available to choose the best sequence of courses for their future. Students will also require early opportunities to identify their own strengths, weaknesses, and interests and to gain extensive knowledge about the world of work and the importance of postsecondary education for most careers. Career interest inventories and career fairs for eighth and ninth graders will be especially helpful. Counselors must be trained to help with the recruitment of all students into meaningful degree programs and to encourage the pursuit of postsecondary education with students who are not clearly bound for college.

PROVIDING WORK EXPERIENCES

> The half of our youth who do not go on to college have a right to be able to compete for jobs that are adequate in numbers, that offer reasonable wage levels, that provide health insurance and other essential benefits, and that offer career advancement in return for diligence and competence.
>
> William T. Grant Foundation
> *The Forgotten Half*, 1988

When schools are attempting to assure that all students are adequately prepared for a life of learning and work, a well-integrated academic/vocational education is clearly enhanced by on-the-job experiences. Estimates of the percentage of high school students who work ranges from 66 to 90 (Mortimer, Dennehy, & Lee, 1992; Northdurft, 1990). However, most of these students are working jobs that are not linked to school experiences and are rarely educational. Although routine, highly supervised, undemanding work—such as in fast-food restaurants—can teach students the importance of punctuality, reliability, and teamwork, these jobs teach few other skills and require little academic knowledge. Instead, students need paid work experiences that build on school learning, draw on cognitive as well as practical skills, and develop abilities that students can use in other work and school settings (Rosenbaum et al., 1992). Although critics worry that such a vocational emphasis will force students to make life choices at a young age, the fact is that high school students are already making choices—to drop out, drift through high school without any clear focus, or prepare for college. Connecting learning and work will simply allow students to make more informed choices (Northdurft, 1990). School-to-work programs should be designed so that students can try different vocational options and be trained in how to learn and work so these skills are useful no matter what their ultimate career decisions.

Potential dropouts are more likely to remain in school when learning experiences are combined with paid work. However, if they are working on their own or through a work-study program that does nothing to coordinate work and school experiences, at-risk students are actually **more likely** to drop out in order to work full time (Mann, 1986; Smith & Ament, 1990; Weber, 1986).

Collaboration between businesses and schools is the foundation for educational work experiences. Fortunately, teachers and employers have similar goals: they both want youth to be disciplined, motivated, and responsible, and to develop critical-thinking and problem-solving skills. Local businesses may be induced to hire and train part-time student workers if assured that students have basic academic skills, some related vocational training, and the necessary personal skills (Williams, 1992). Although employers are

Advantages of Linking School and Work Experiences in High School

- School learning can be immediately applied to the real-life demands of work.
- On-the-job learning can be brought back to the classroom to enhance school learning.
- Students develop job-related skills: following directions, getting along with others, taking responsibility for one's work, and managing money.
- Work allows students to be trained on state-of-the-art equipment many schools cannot afford.
- Students are exposed to career possibilities through first-hand experience.
- Students gain work experience they can include in their résumés.
- Students learn to value work for more than the money they earn; they realize the intrinsic rewards of helping others, improving skills, and completing projects.
- Employers can assess student abilities prior to full employment.
- Work occurs among adults who can mentor and guide young persons as they move into adulthood.

(Mortimer, Dennehy, & Lee, 1992; Northdurft, 1990; Rosenbaum et al., 1992; Williams, 1992)

expected to pay the wages of student workers, they can take advantage of the fact that students can be paid at a rate commensurate with their "apprenticeship" status (Northdurft, 1990). In recruiting businesses, schools should point out that this program allows employers to learn the work habits and abilities of a number of potential permanent employees and can, in the long run, improve their total pool of workers so that they no longer have to spend money on remedial training.

Employers must agree to provide a work site mentor (either the employer or another staff member) to train student workers in a variety of tasks and provide guidance and information about employee roles in that industry. For example, students may want to know how much education is required for particular positions in the company or how to climb the career ladder to reach a certain income level (Hull & Marsalis, 1991). The school-based coordinator of the program should send more than one student to be interviewed so that the employer has some choice about whom he or she agrees to train. This also gives students practice with job interviews (Rosenbaum et al., 1992). Both the student and employer must understand that the school-work experience will not necessarily lead to permanent employment; the employer has no obligation to hire the student after graduation, and the student is free to seek a job elsewhere or to pursue postsecondary education (Hull & Marsalis, 1991).

Organizing and monitoring student work experiences is a time-consuming task. According to Hull and Marsalis (1991) and Rosenbaum et al. (1992), the teacher or coordinator for a school-work program is responsible for the following:

- recruiting and interviewing students for the school-to-work program;
- orienting students to the program and the work placement;
- recruiting employers;
- developing a written agreement with employers about the learning objectives of the work experience;
- organizing transportation for students and scheduling work hours around course requirements, electives, and extracurricular activities;
- meeting with and observing students at the workplace;
- writing formal evaluations of students;
- intervening when problems arise between students and employers; and
- helping students make connections between what they are learning in school and on the job.

PROGRAM PROFILE:

The Tech Prep (Technical Preparation) Associate Degree Program is a program of study that combines academic and vocational/technical course work to prepare high school students for the advanced courses required by two-year colleges. Developed as a "4 + 2" model in a collaborative effort by the Richmond County (North Carolina) School System, Richmond Community College, business and industry, government, and parents, Tech Prep helps noncollege-bound high school students prepare for postsecondary training/education. The ultimate goal of the program is to help students succeed at the associate degree level and to compete in today's technologically oriented workplace.

Tech Prep begins formally in the seventh grade with a series of career guidance activities that students participate in throughout high school. Designed to help students make appropriate career decisions, these activities include the use of computer software such as Career Finder and other interest inventories; vocational aptitude assessments such as TAPS and ASVAB; and standardized tests such as the SAT, ACT, and AP tests.

Ideally, students enroll in Tech Prep courses in the ninth grade, where they begin a rigorous course of study in one of three fields: business, health/human services, and industrial/mechanical/electrical engineering. In addition to academic courses, business students can take such courses as marketing, fashion merchandising, and business law; students enrolled in the health/human services program choose from interior design and housing, child care services, and cosmetology; engineering students can take horticulture, drafting, and industrial technology. All students are required to take an English course at all four grade levels and at least one algebra course.

After graduating from high school, students enroll in a two-year associate degree program at a technical school or community college where they can earn associate degrees in such fields as mechanical engineering technology, nursing, criminal justice, and business administration.

Although many feared that Tech Prep's higher standards would scare some students away and increase the dropout rate, Tech Prep is credited with decreasing the dropout rate for Richmond County schools from 7.2 percent to 3 percent. Tech Prep has also achieved the following milestones in its first seven years of operation:

- Nine new (primarily technology, mathematics, and business) courses have been added; eight vocational courses have been upgraded to include a greater emphasis on technology.
- Although the number of students enrolled in Algebra I and Algebra II courses has increased significantly, standardized test scores for the school have improved or remained the same.
- The number of Richland County seniors indicating (on the annual Graduate Intentions Survey) that they intend to enroll in postsecondary institutions has steadily increased and has exceeded the state average.
- The North Carolina Tech Prep Leadership Development Center has been established in Hamlet, North Carolina, to disseminate information about Tech Prep and to help other school districts replicate the Tech Prep program.

In view of the success of the Tech Prep program at Richmond County Schools as well as the school systems in Anson, Moore, Montgomery, and Scotland Counties (the first four districts to replicate the program), the North Carolina Board of Education and Board of Trustees have adopted a policy requiring all students in North Carolina to take Algebra I and all school districts to implement Tech Prep programs by 1995.

Richmond County Schools - Richmond Community College
Suggested Tech Prep Course of Study

Reg. - Regular
CP - College Prep
*Vocational

1992-1993

GRADE	ENGINEERING (industrial, mechanical, electrical)	HEALTH/HUMAN SERVICES	BUSINESS
9	Reg./CP English Algebra I/IA Government and Economics Health and Physical Education Physical Science/Arts Education Technology Education *Introduction to Agriculture	Reg./CP English Algebra I/IA Government and Economics Health and Physical Education Physical Science/Arts Education *Living Technology	Reg./CP English Algebra I/IA Government and Economics Health and Physical Education Physical Science/Art Education *Keyboarding/Typewriting
10	Reg./CP English Algebra I/IB, Geometry Informal Geometry Reg. /CP Biology *Principles of Technology I *Horticulture I *Introduction to Engineering Technology Introduction to Manufacturing Technology *Textile Technology I Introduction to Construction Technology	Reg./CP English Algebra I/IB, Geometry, Informal Geometry Reg./CP Biology Reg./CP Psychology/Sociology *Intro. to Health Occupations/ Foods and Nutrition *Clothing and Textiles *Parenting and Child Development *Interior Design and Housing *Foods and Nutrition *Cosmetology I *Food Science	Reg./CP English Algebra I/IB, Geometry, Informal Geometry Reg./CP Biology *Computerized Accounting I *Advanced typewriting/ Word Processing *Business Math *Fashion Merchandising *Keyboarding/Typewriting I *Marketing *Shorthand/Speedwriting I Pre-Computer Programming
11	Reg./CP English Geometry, Algebra I/IB, Informal Geometry United States History - Reg./CP Principles of Technology I/II *Auto Technology I *Carpentry I *Ind. Coop. Training I *Metals Technology I *Graphics I *Technical Drafting I *Textile Technology I, II *Electronics I *Masonry I *Horticulture II	Reg./CP English Anatomy/Physiology Geometry, Algebra, I/IB, Informal Geometry United States History - Reg./CP Reg./CP Chemistry *Technical Health Occupations I *Clothing and Textiles *Foods and Nutrition *Parenting and Child Development *Interior Design and Housing *Child Care Services I *Commercial Foods I *Home Economics Cooperative Ed. I *Cosmetology II *Food Science	Reg./CP English Geometry, Algebra I/IB, Business Math, Informal Geometry United States History - Reg./CP Science Elective (If Physical Science is not taken) *Administrative Support Occupations I *Shorthand/ Speedwriting I, II *Advanced Typewriting/ Word Processing II *Business Data Processing I *Business Law Business Math *Computerized Accounting, II *Marketing *Marketing and Merchandising *Fashion Merchandising

Tech Prep *continued . . .*

GRADE	ENGINEERING	HEALTH/HUMAN SERVICES	BUSINESS
11			*Graphics I Pre-Computer Programming Computer Programming I
12	Reg./CP English Geometry Algebra II Principles of Technology I/II *Entrepreneurship *Agriculture Cooperative Ed. *Auto Technology II *Electronics II *Technical Drafting II *Ind. Coop. Training I, II *Metals Technology II *Masonry II *Textile Technology I, II, III *Graphics II *Carpentry II Horticulture II, III	Reg./CP English Geometry, Algebra II, Informal Geometry Anatomy and Physiology *Entrepreneurship *Health Occupations II *Clothing and Textiles *Foods and Nutrition *Interior Design and Housing *Parenting and Child Development *Child Care Services II *Commercial Foods II *Cosmetology III *Home Economics Cooperative Ed. II *Food Science	Reg./CP English Geometry, Algebra II, Business Math, Informal Geometry *Entrepreneurship *Administrative Support Occupations II *Advanced Typewriting/Word Processing II *Applied Communications *Business Data Processing I, II *Business Law *Business Math *Computerized Accounting I, II *Fashion Merchandising *Marketing and Marketing Merchandising *Shorthand/Speedwriting I, II *Graphics II Computer Programming I, II
13	Architectural Drafting Electrical Installation and Maintenance Electronic Servicing Industrial Maintenance Machinist Vending Machine Maintenance	Practical Nursing Education (LPN)	General Office Technical Specialty
14	Electronic Engineering Technology Mechanical Engineering Technology	Associate Degree Nursing (RN) Criminal Justice Human Services Technology	Accounting Business Administration Business Computer Programming

For more information, contact:
Myrtle D. Stogner, Director
North Carolina Tech Prep Center
Box 1189
Hamlet, NC 23845
(919)582-7187, (919)582-7028.

Source: Finney, 1993.

SCHOOL PROFILE:

Wren High School in Piedmont, South Carolina, successfully integrated academic and vocational instruction through a Tech Prep program and applied academics. This integration was blended into the school's total reengineering effort (its "Wrenovation," as the staff call it) over the past five years. The program includes block scheduling, participatory management, and eliminating the general diploma track. Principal Jimmy Johnson believes that implementing the Tech Prep program has been one of the most significant school-wide changes made at Wren, but an observer would also be immediately aware of the shared leadership that has developed there. For example, new roles that combine administrative and teaching duties have been created, and Johnson often defers to teachers' perceptions to answer questions about the school's experiences.

Before designing their Tech Prep program, the teachers and principal at Wren conducted extensive research: they attended conferences, collected information on successful programs throughout the country, read the latest research literature, visited schools, and attended staff development workshops about applied academics. Wren's curriculum includes most of the applied academics units commonly used. Tech Prep was an important innovation because Johnson wanted the diploma to be a "ticket somewhere" for all students, "so they would be prepared for the work place or future education—not just out of high school."

Johnson and teachers note that the biggest challenge about implementing Tech Prep is making students aware of what the applied classes have to offer. Eighty percent of the Wren senior class in 1992 said they planned to go to college, so most students did not think that Tech Prep would be useful to them. Through brochures, a videotape, careful explanation in the book of courses offered each year, and word-of-mouth, students learned that the applied courses may be a be a better way for students to learn academic subjects whether they planned to attend college or not. For example, applied biology and chemistry courses are promoted as sensible choices for any student who is not planning to major in science in college.

The student-produced videotape emphasizes why students should look into Tech Prep as a diploma option. The applied courses are praised for making learning more fun and helping students feel that they are learning things they can use in the "real world." Students hope to be able to get better jobs and earn more money. They also predict that college will be easier because they will be better prepared and might be less expensive because advanced placement courses can allow the students to skip basic courses. This last advantage refers to an agreement that Wren has with Tri-County Technical College in Pendleton, South Carolina, that allows students to take Technical Advanced Placement courses in high school, pass a competency test, and receive college credit; eleven of Wren's courses are designed this way. Students are also told that they will be better prepared for the military; about ten percent of Wren's graduates enlist in the armed services each year. The Tech Prep concept, together with an emphasis on the student as customer, has made instruction at the school more relevant and student interest in Tech Prep is growing.

All of Wren's 1,150 students take either college-prep English or applied communications each year, and one-fourth of the 9th and 10th graders took applied math in 1992-93. "Physics for Technologies" and applied geometry each enrolled approximately 60 students last year, and 150 students took industrial technology. All of these classes use a hands-on cooperative approach to learning; students explore concepts by using tools and equipment from the workplace and complete group projects that require them to solve real problems. For instance,

students in applied physics wrote a grant for, designed, and installed solar panels for the school building, saving the district money on utilities.

Teachers at Wren are also excited about Tech Prep. They and teachers from neighboring high schools that are also implementing applied classes have developed support groups for each subject area. Kathy Jones, formerly a full-time mathematics teacher and now a half-time counselor and a half-time teacher of applied mathematics and algebra, is a strong proponent of Tech Prep and the other changes made at Wren. She admits she was one of the most reluctant teachers at the school about taking risks. However, she knew she wanted to address her own perception that mathematics classes were becoming "drudgery" and to get students discussing concepts, working cooperatively, and applying their learning in concrete ways. "I honestly didn't know where some of my students were going to use algebra," Jones confided. Now her classes promote teamwork and problem-solving skills; she uses games to help students develop a group identity, assigns group activities on real problems, expects students to help one another learn concepts and improve their homework, and lets students grade each other on their contributions to the group's efforts. She has been pleasantly surprised to see students who had rarely been engaged by school before thrive in this cooperative work setting and even assume leadership roles. Jones hopes that her attempts to make mathematics more relevant to students will be rewarded by graduates coming back in a few years "to say that they *used* what they learned in my classes."

For more information, contact:

Jimmy Johnson
Principal
Wren High School
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Piedmont, SC 29673
(803)232-4842

Work experiences can be structured in a number of ways. Students can sign up for a vocational course in which the teacher's and students' main responsibility is planning and engaging in the work experience, or a team of teachers can develop an interdisciplinary instructional program that includes a work experience component managed by the team (Roditi, 1991). Another option is to create a school-wide program with one or two staff members who coordinate placement of all students interested in a school-to-work program. Work experiences are most sensibly included as part of a tech-prep diploma plan, but college-prep students will also benefit from the experience. Hull & Marsalis (1991) recommend that 10th graders work no more than 8 hours per week and 11th and 12th graders work no more than 15 hours per week; full-time employment during the summer can also be included in the program. The following are three examples of school-linked work programs:

Apprenticeships

There is a growing national interest in work apprenticeships to expand the pool of highly skilled workers and ensure that those without a four-year college degree are prepared for well-paying jobs. According to *Jobs for the Future* (1991), apprenticeships usually combine the following basic elements:

- paid work/learning experiences provided by employers;
- combined secondary and postsecondary educational experiences resulting in a high school diploma, postsecondary credential (such as an associate degree), and certification in an occupational area; and
- ongoing collaboration between schools, employers, and other institutions so that academic and vocational learning can be integrated through innovative instruction at school and work.

Most apprenticeship programs last three to four years, during which the apprentice is completing high school and postsecondary education; the amount of time spent in the classroom decreases as time on the job increases. When the apprenticeship is completed, the worker becomes certified as a professional in the field. Although individual schools and local businesses can organize apprenticeships as part of a tech-prep program, a youth apprenticeship program that allows widespread participation and results in nationally recognized occupational credentials (granted after the apprentice passes a certification exam) will require the combined efforts of public and private high schools and colleges, small businesses and large companies, government, and trade unions.

In his account of a national conference on youth apprenticeship in America, Northdurft (1990) claims, "The United States is the only major industrialized nation without a formal system for helping young people make the transition from school to productive, skilled employment" (p. 14). In Germany, which has a national system of

youth apprenticeships, about 70 percent of 16-19 year-olds apprenticed with about a half million employers in 1989. These young people have the opportunity to earn formal certification in 380 occupations (Brand, 1990). By comparison, only about two percent of high school graduates in the U.S. enter into apprenticeships, and the average age of an American apprentice is 27 years; these apprenticeships are organized by businesses and usually train skilled craftworkers for unionized construction or large scale manufacturing (Brand, 1990; Rosenbaum et al., 1992).

To make the case for a national youth apprenticeship system, Northdurft (1990) refers to a survey of 250 mid-size American manufacturers in which two-thirds agreed that they had a productivity problem but had responded to it by "dumbing down" the tasks asked of workers, replacing workers with machines, and lowering wages. Northdurft stresses that, since American businesses will never be able to compete with the low wages in third-world countries,

> This 'low-brow' approach to competition is remarkably short-sighted and ultimately doomed to failure.... American firms must compete by producing *smarter*—improving product quality more rapidly, introducing new products more frequently, and customizing products to meet the needs of narrow market niches. (p. 7)

Such reforms in business can obviously be accomplished only by increasing the number of skilled workers and their levels of productivity. A national youth apprenticeship program can help provide these results as well as decent salaries and promising careers for all young people (not just those with college degrees) and a reduction in social problems—such as welfare dependency, crime, and substance abuse—associated with unemployment and poor wages.

Cooperative Education (Co-op)

With almost a million high school students involved, co-op programs are the most common form of school-linked work experiences, but they vary widely in how well they are integrated into the student's school learning (Brand, 1990). Such programs are usually organized around a business or vocational class that includes off-campus work. The course instructor arranges and supervises job placements that are then supplemented by class discussions connecting academic and vocational instruction and on-the-job experiences. The instructor and employer or supervisor agree on training objectives and a plan for evaluating the student workers. Students receive course credit and are paid for their work. Rosenbaum et al. (1992) show that, compared to students who are employed in jobs not affiliated with school, co-op students are more likely to report that their jobs (continued on p. 74)

Dynamite Idea *

The HART Program

The Dade County School's Office of Vocational, Adult, Career, and Community Education created the Hurricane Andrew Recovery and Training (HART) program to provide students with work and learning experiences in construction. Sixty students in HART have volunteered with Habitat for Humanity to help build affordable homes for low-income families. HART provides students on-the-job training and help with job placement in local construction companies while serving the Miami community at the same time.

Source: Florida Department of Education, May, 1993.

Alabama's Student Apprenticeship Linkage Program in Vocational Education

The Student Apprenticeship Program in Alabama is expanding state efforts to develop a quality work force for its future. The program is designed to bridge skill training programs in high schools with apprenticeship training in industry. The program facilitates the transition of students from high school into high technology occupations through the cooperative efforts of education, industry, and labor. Selected high school seniors who have completed a specified amount of vocational and academic instruction are eligible to begin earning apprenticeship credit through an industry-education cooperative program that can lead to full-time employment.

The program has several objectives:

1. Establish a systematic transition for youth apprentice students from school to work by linking academic curricula with curricula for work-site experience and training;
2. Enhance participating students' prospects for full-time employment after high school by placing them in positions that provide significant work experience and opportunities for continued education and career development;
3. Increase the efficiency of work force preparation by providing early entry of students into apprenticeship programs;
4. Provide a source of skilled workers for occupations that will have high demand and low supply in the future (e.g., electronics, machinist, computer peripheral, drafting);
5. Provide a mechanism for the significant involvement of community agencies and industry in the public school system;
6. Enable employers, particularly small businesses and industries, to participate in apprenticeship programs with prohibitive training costs;
7. Provide a means for students to receive training on state-of-the-art equipment without requiring excessive capital outlay by schools;
8. Facilitate the entry of minorities, women, and other underrepresented groups into apprenticeship programs; and
9. Provide employers opportunities to assess student skills and potentials prior to making major commitments of full apprenticeship salaries and permanent employment.

Inservice meetings are conducted at local schools with all vocational personnel and with guidance counselors to explain the student apprenticeship program. Vocational personnel are urged to contact the industries in their areas of training to determine the need and opportunities for the program. Individual companies are then contacted about the program by the apprenticeship coordinator. If a company is interested in the program, the Bureau of Apprenticeship and Training is notified and the training program is properly certified. Once the program is certified, the student is registered with the Bureau of Apprenticeship and Training as a student apprentice and begins receiving credit toward his or her certification in the skill area while completing the requirements for high school graduation. The local education agency, in cooperation with local businesses and industries, operates the Students'

Technology Plus of Alabama, Decatur, Ala.

Apprenticeship Linkage Program in accordance with the standards of the Bureau of Apprenticeship and Training.

Participating students must exhibit a knowledge of mathematics, science, and communications skills and must demonstrate this mastery on the Alabama Basic Competence Exam. Students must have passed Algebra I or its equivalent by the end of 11th grade. Students must also have completed at least one year of vocational training in the "apprenticeable" area prior to their 12th grade year. Recommended students are screened for approval by the employer and by the apprenticeship committee.

During their 12th-grade year, Youth Apprentices work part-time, attending school for part of the day (usually in the morning) and working in the afternoons (a maximum of 20 hours per week) as apprentices. State standards providing for student safety are followed, and participants begin receiving credit (recorded as vocational cooperative education credit) toward their certification in the a skill area while completing the requirements for high school graduation.

The local Youth Apprenticeship Coordinator visits each student on the job at least twice and consults with the student's supervisor/mentor. A training plan is developed for each student and reviewed on a regular basis; students are also evaluated on their performance. Participants attend the equivalent of four hours a week of related instruction. The content of this instruction is dictated by the youth apprenticeship training agreement and must be approved by the school coordinator in accordance with apprenticeship standards and the students' employers. Related instruction is provided during school hours and school credit is granted.

Initially, the program provided each participating employer a stipend for one-half of the students' wages up to $2.50 per hour to help offset some of the cost incurred by the employer in establishing the program and to encourage employers to participate. Funds for reimbursement are no longer available, but businesses have seen the value of the program and have continued to participate even without the stipend.

Since the program began in 1989, over 300 students have participated, serving as apprentices in more than 150 companies and 50 different occupational areas. More than 200 industries have registered with the Bureau of Apprenticeship and Training as a result of the program. Over 70 percent of the students participating in the Student Apprenticeship Linkage Program have entered full-time apprenticeships programs upon graduating from high school. Over a third of the participants are females, and approximately 15 percent are minorities.

For more information, contact:

Technology Plus of Alabama
P.O. Box 2687
Decatur, AL 35602
(205)552-3700

- draw on what they have learned in school,
- clarify new concepts in their classes,
- are related to their desired careers, and
- are intrinsically interesting and worthwhile.

Most co-op jobs are in retail sales, secretarial work, auto repair, and construction (Rosenbaum et al., 1992). However, by connecting co-op programs to a tech-prep diploma track or career academy, co-op students can gain experience in career-oriented positions that are in high demand, including legal assistants, medical technicians, computer programmers, electrical technicians, and machine operators.

School-Based Enterprises

School-based enterprises (SBEs) allow students to gain work experience without the cooperation of outside employers. SBEs are sponsored by the high school, usually as part of a vocational class, and may allow a more focused integration of the work experience with academic and vocational instruction because the whole class works together at the same business. Possibilities for an SBE include operating a restaurant, car repair business, or child-care center or building a house. Students can rotate among the various positions in the business, practice being a supervisor or manager, and train each other. Research has found that such SBEs provide more opportunities for learning than the jobs students find outside of school (Rosenbaum et al., 1992).

The way to turn on turned-off students is to help them understand the role of high school achievement in reaching their goals in life.

Gene Bottoms, Alice Presson, & Mary Johnson, *Making High Schools Work*, 1992.

PROVIDING EDUCATIONAL AND CAREER COUNSELING

The preceding pages have offered several ways to help connect high school learning to students' future lives, but the results of high school reform for students can only be realized when each student is helped to match the right educational opportunities with his or her goals. Counseling and guidance—whether from professional counselors, teachers, administrators, mentors, or parents—is integral to making all other reforms work for students.

Mortimer, Dennehy, and Lee (1992) found that economically advantaged and disadvantaged high school students held similar educational and occupational aspirations for their futures, but the disadvantaged were more likely to drop out than their advantaged peers, had significantly lower GPAs, and were not likely to have made plans for attending a postsecondary institution. This finding suggests that all students have dreams for their future—dreams that can be realized if, among other things, counselors and teachers reach these students early in their high school careers and build educational experiences around these dreams. In fact, disadvantaged students report that they are more likely to seek occupational

guidance from counselors or vocational instructors than from family members (Mortimer, Dennehy, & Lee, 1992). Of course, adequate counseling requires trust to be developed over time between the student and counselor, and learning opportunities may need to be supplemented with health, psychological, and social services in order to serve the at-risk student effectively. The nature of high school counseling also needs reengineering to meet the varied needs of each student. As Bottoms, Presson, and Johnson (1992) note,

> The guidance staff will never have enough time or manpower to be all things to all students. The task of getting every student ready for the future is monumental. Only by coming out of isolation and enlisting the help of all teachers will counselors be able to multiply their efforts and help create a school curriculum and environment to reach every student. (p. 171)

Counseling must become a school-wide responsibility and enlist the help of the community. Most of the programs discussed in this publication emphasize the use of mentors, such as teachers, local business people, government employees, parents, and college faculty or students. Counseling from former dropouts who have experienced the difficulties of life without a high school education may also be effective with students at risk (Brodinsky & Keough, 1989). Professional counselors at the school can organize mentorship programs, provide teachers and mentors with training in career guidance and with information about alternative educational programs, and arrange special services for identified students. Reihl, Natriello, and Pallas (1992) found that decisions to enroll disadvantaged students in certain courses or place them in special programs are often based on inadequate information and are made without consulting the student. This suggests that schools must make careful, individualized guidance and placement a priority so that each student receives the education and services that he or she needs.

Counseling will be crucial to raising the school's expectations of students and students' expectations of themselves. When students come to a counselor or teacher for help with their schedules, they should be guided into challenging courses. "You should always take the highest level of academic coursework you can handle successfully" says one high school curriculum planning guide for students (Wren High School, 1993). Counselors can help a student develop and follow a plan of action for his or her high school and post-graduation years, but they must put aside traditional biases against vocational education, co-op programs, or GED preparation and consider what plan is best for each student. Counselors must get involved in school reform efforts to make every high school option useful for students. Carroll (1989) recommends that every

Dynamite Idea

Teachers as Advisors

Apopka (Florida) High School has created a Teachers as Advisors program and assigned 20 to 25 students to every teacher for periodic advising and guidance. Teachers advise the same group of students from one year to the next, meeting daily with the group for 15 minutes and monthly for 50 minutes. The teachers-as-advisors encourage and praise students' efforts and talk with them about career choices, course selection, homework demands, attendance records, and other issues. Students who have a particular occupational interest are often reassigned to a teacher in that field.

The teachers receive periodic reports on student progress and can use a school-wide database to retrieve background information on advisees. Teachers maintain contact with parents through phone calls, newsletters, and invitations to serve on committees, speak in classes, or attend special events.

Student surveys reveal that the Teachers as Advisors program has made them feel that teachers care about them and are interested in them. In 1992, 13 percent more parents than the previous year attended conferences to plan their children's high school.

For more information, contact:
Anita Ryall, Coordinator
Teachers as Advisors
555 West Martin Street
Apopka, FL 32703
(407)889-4194

Source: SREB, 1992.

student be helped to develop an Individual Learning Plan that lays out what coursework a student must complete (and what competencies must be attained) to reach a desired objective after high school; of course these plans should be flexible to allow students to make changes as their judgment matures.

Proper counseling is most critical for students who are thinking about dropping out or who do not plan to attend college. These students need to be helped to make informed choices about their immediate future. Unfortunately, getting adolescents to think about their future is challenging. They are often described as adrift; isolated from their history, families, and the adult world; and thinking high school will last forever. Students who are bound for four-year colleges have a buffer of time before they must face choosing a vocation and finding a job, but for the three-quarters of high school students who either drop out, go directly to work, or attend a community or technical college, the need to make some life decisions while still in high school is essential (Grubb et al., 1991).

However, students cannot be helped to set goals until they have adequate and correct information about their future options. As many of the curricular changes discussed in this section suggest, students who originally thought only about getting a job after graduation may become interested in postsecondary education if they are encouraged to explore the idea. As counseling becomes the responsibility of all school staff, counselors and teachers can work together to design classroom activities that allow students to gather information about career options and/or postsecondary education. A half-credit course can be implemented in which students explore future options and receive guidance on their evolving plans for the future. The following is a sample of projects that students can do:

- Select job openings in the classified ads and research those jobs; written descriptions can then be compiled into a resource book for other students.
- Learn to use catalogs from universities and technical colleges to identify the educational requirements for fields of interest.
- Study company procedures manuals to become familiar with organizational rules and regulations.
- Maintain a career journal about the jobs held by relatives, neighbors, and adult friends; conduct interviews to learn about the pros and cons of the jobs, salary, educational requirements, and demands for these jobs in the work force.

- Attend career fairs and visit local businesses; come prepared with questions about what the business and industry do, what kinds of jobs they offer, how someone can get one of these jobs, what it takes to keep that job, and what it takes to advance into other positions.

- Visit the nearest community and technical college to get information about admissions procedures, course and degree offerings, financial aid, and part-time scheduling that allows a student to work while taking classes.

- Develop and practice successful job interview strategies and skills (Woodley, Holmes, & Sorg, 1992; Hull & Marsalis, 1991).

Dynamite Idea

REAL Enterprises

In the REAL (Rural Entrepreneurship through Action Learning) Enterprise program, students research community needs and then design and establish small businesses to meet them. By giving entrepreneurial students practical business experience and offering them incentives to remain in their hometowns rather than move to metropolitan areas, REAL helps improve the outlook of high school students as well as their communities.

Students participating in REAL courses research, design, and operate their own business, either individually or as a group. Work begins in the classroom, where students study group dynamics and personal and community relations and work with others to develop communication skills and learn basic accounting and record-keeping.

Students' research includes field trips to interview business people and learn first-hand the benefits and responsibilities of owning a business. Students conduct surveys of the community to identify residents' interests and areas where new businesses are needed. Instructors trained specifically for the REAL program guide students and help them locate information, resources, and contacts for further assistance. They also encourage students to work as apprentices at businesses that interest them. When students have completed a business plan, funds are provided through the school to help them set up their enterprises. Examples of successful enterprises established by REAL students include t-shirt screening-printing businesses, bakeries, and delivery services for shut-ins.

Based in Athens, Georgia, REAL works with local school systems in 14 states with funding typically coming from the school system, the local community, and state REAL organizations. In some instances, the community support is from a neighborhood bank or the chamber of commerce. REAL staff support the program through inservice seminars for teachers, curriculum guides, site visits, and regional planning sessions. They also provide ongoing assistance, even after students have graduated from high school. For example, one recent graduate who had developed a t-shirt screening business received a grant through REAL to buy equipment. REAL also helped her secure a bank loan to continue her project while attending college.

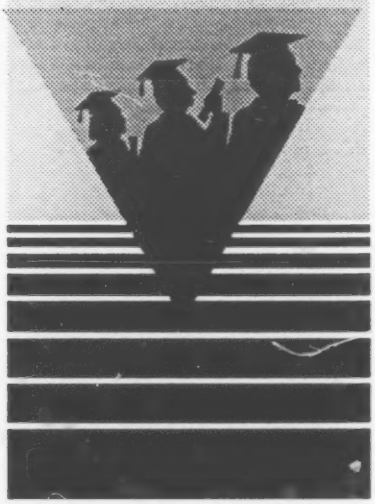
REAL is helping students reexamine their future plans and recognize the possibility of becoming employers instead of employees. Teachers report that participating students are more mature, more serious about their work, and more willing to assume responsibility. Parents and the community are very receptive to the program, and business people are enthusiastic about sharing their business insight.

For more information, contact:

Paul DeLargy, President
REAL Enterprises
Post Office Box 1643
Athens, GA 30603
(706)546-9061

Rick Larson, Executive Director
North Carolina REAL Enterprises
948 Old Post Road
Chapel Hill, NC 27514
(919)929-3939

RESOURCES



RESOURCES

The following organizations and publications offer additional information, examples, advice, and/or services in the area of reengineering high school education. (Note: there are fees for many of the resources listed below, and their inclusion in this document does not represent an endorsement by SERVE.)

ORGANIZATIONS

American Vocational Association (AVA). AVA helps vocational educators and institutions provide effective programs of education that prepare students for work. In addition to promoting legislation to improve vocational education, AVA develops vocational programs, sponsors professional development, and provides research and other information to interested educators and to policymakers. For more information, contact AVA at 1410 King Street, Alexandria, VA 22314 (703)683-3111.

Center on Education and Training for Employment. Associated with the College of Education at Ohio State University, the Center offers a wide range of publications and other products on subjects including technical and vocational education, professional development, literacy, career education, teaching at-risk youth, apprenticeships, and career planning. For more information, contact the Center on Education and Training for Employment, Ohio State University, 1900 Kenny Road, Columbus, OH 43210-1090 (800)848-4815.

National Center for Research in Vocational Education (NCRVE). NCRVE is a consortium of scholars and service personnel from seven institutions (University of California at Berkeley; University of Illinois; University of Minnesota; RAND; Teachers' College, Columbia University; Virginia Polytechnic Institute and State University; University of Wisconsin). NCRVE prepares individuals for lifelong employment and acts to promote the development of an economy dominated by a skilled work force and in which firms use more skilled workers and provide appropriate incentives for education and training. NCRVE has produced a wealth of research, publications, products, and training in areas that include vocational education programs, the economic context of vocational education, accountability and assessment, dissemination, professional development, program development, and curricular and instructional materials. For more information or to request a catalog of NCRVE products, contact the National Center for Research in Vocational Education, 1995 University Avenue, Suite 375, University of California at Berkeley, Berkeley, CA 94704 (800)762-4093.

South Carolina Center for the Advancement of Teaching and School Leadership. Established in 1990 by South Carolina's Target 2000 legislation, the Center is the first state-supported center of its kind in the nation. In addition to working closely with national, regional, and state organizations involved in school change, the Center sponsors training by nationally recognized scholars for public school teams and college faculty who in turn serve as advisors, facilitators, and resource brokers to other schools. The Center has been involved in school restructuring efforts since its inception, and staff are available to offer research and technical assistance to interested educators. For more information, contact the Center at 311 Breazeale, Winthrop College, Rock Hill, SC 29733, (803)323-4772 or (800)768-2875.

Southern Regional Education Board (SREB). See page 51 for a detailed description of SREB's activities in the area of reengineering high schools.

PUBLICATIONS

Appreciating Differences: Teaching and Learning in a Culturally Diverse Classroom, Evelyn Ploumis-Devick, 1992. Available from NEFEC/SERVE, Box 8500, 3841 Reid Street, Palatka, FL 32177 (904)329-3800, $7.00.

Building the Future for Students At Risk: Sourcebook on Dropout Prevention, North Carolina Department of Public Instruction. Available from the Division of Student Services, Department of Public Instruction, 116 West Edenton Street, Raleigh, NC 27603-1712.

Comprehensive School Improvement, Joe Follman, Brian Curry, and Ralph Vedros, 1993. Available from NEFEC/SERVE, Box 8500, 3841 Reid Street, Palatka, FL 32177 (904)329-3800, $7.00.

The Copernican Plan: Restructuring the American High School, Joseph Carroll, 1989. Available from the Regional Laboratory for Educational Improvement of the Northeast and Islands (NEIS), 290 South Main Street, Andover, MA 01810 (508)470-0098.

"The Cunning Hand, the Cultured Mind": Models for Integrating Vocational and Academic Education, W. Norton Grubb, Gary Davis, Jeannie Lum, Jane Plihal, and Carol Morgaine, 1991. Available from the National Center for Research in Vocational Education, 1995 University Avenue, Suite 375, University of California at Berkeley, Berkeley, CA 94704 (800)762-4093.

"Developing an Alternative High School: Dos and Don'ts," Barry Whalen, September 1985. Published in *NAASP Bulletin*, p. 106-109.

"From Carnegie to Copernican": A Working Conference on Restructuring the High School, Karen L. Singh, 1992. Available from the Florida State University School, West Call Street, Florida State University, Tallahassee, FL 32306-3025 (904)644-1025.

How Much Does a Youth Apprenticeship Program Cost, and Who Will Pay for It? Lessons from Some Long-standing School-to-Work Programs and Youth Apprenticeship Programs Under Development, Hannah Finan Roditi, 1991. A Working Paper available from Jobs for the Future, 48 Grove Street, Summerville, MA 02144 (617)628-6661.

How to Assess Student Performance in Science: Going Beyond Multiple-Choice Tests, Wendy McColskey and Rita O'Sullivan, 1993. Available from NEFEC/SERVE, Box 8500, 3841 Reid Street, Palatka, FL 32177 (904)229-3800.

Increasing School Completion: Strategies that Work, Marilyn S. Beck, Spring 1991. Number 13 in the Monographs in Education series, available from Monographs in Education, G-10 Aderhold Hall, University of Georgia, Athens, GA 30602.

Integrating Academic and Vocational Education: Best Practices in Florida, Cynthia Woodley, Wally Holmes, and Steven Sorg, 1992. Available from the Florida Department of Education, Division of Vocational, Adult, and Community Education, Florida Education Center, Tallahassee, FL 32399-0400 (904)488-0400 or (800)342-9271.

Integrating Academic and Vocational Education, A Literature Review: First in a Series, Wally Holmes, Mary Williams, Joanna Gurchiek, Ronald Peake, Joyce Goldstein, and Paulette Mainwood, 1992. Available from the Florida Department of Education, Division of Vocational, Adult, and Community Education, Florida Education Center, Tallahassee, FL 32399-0400, (904)488-0400 or (800)342-9271.

Integrating Academic and Vocational Education: Second in a Series, William Blank and Janet Scaglione, 1992. Available from the Florida Department of Education, Division of Vocational, Adult, and Community Education, Florida Education Center, Tallahassee, FL 32399-0400 (904)488-0400 or (800)342-9271.

Integrating Academic and Vocational Reform: Guidelines for Assessing a Fuzzy Reform, Cathy Stasz and W. Norton Grubb, 1991. Available from the National Center for Research in Vocational Education, 1995 University Avenue, Suite 375, University of California at Berkeley, Berkeley, CA 94704 (800)762-4093.

Interagency Collaboration: Improving the Delivery of Services to Children and Families, Stephanie Kadel, 1992. Available from NEFEC/SERVE, Box 8500, 3841 Reid Street, Palatka, FL 32177 (904)329-3800, $7.00.

Investing in Florida's Economy: Florida's School-to-Work Continuum, Evelyn Pemberton-Hackney, Patricia Polk, Greg Downing, Beverly Robinson, Buz Stephens, and Craig Winger, 1992. Available from the Florida Department of Education, Division of Vocational, Adult, and Community Education, Florida Education Center, Tallahassee, FL 32399-0400 (904)488-0400 or (800)342-9271.

Keeping Students in School: A Guide to Effective Dropout Prevention Programs and Services, Margaret Terry Orr, 1987. Jossey-Bass, New York.

Learning a Living: A Blueprint for High Performance. A SCANS Report for America 2000, Secretary's Commission on Achieving Necessary Skills (SCANS), 1992. Available from U.S. Department of Labor, SCANS, 200 Constitution Avenue, NW, Washington, DC 20210.

Learning by Serving: A Service-Learning Compendium, Joseph Follman, Dianne Wilkes, and James Watkins, 1994. Available from NEFEC/SERVE, Box 8500, 3841 Reid Street, Palatka, FL 32177 (904)329-3800, $7.00.

Making High Schools Work Through Integration of Academic and Vocational Education, Gene Bottoms, Alice Presson, and Mary Johnson, 1992. Available from SREB, 592 Tenth Street, NW, Atlanta, GA 30318-5790 (404 875-9211.

Outstanding Practices for Improving the Academic Achievement of General and Vocational Students, Southern Regional Education Board (SREB), 1992. Available from SREB, 592 Tenth Street, NW, Atlanta, GA 30318-5790 (404)875-9211.

Reaching the Goal to Reduce the Dropout Rate, Gene Bottoms and Alice Presson, 1991. Available from SREB, 592 Tenth Street, NW, Atlanta, GA 30318-5790 (404)875-9211.

A Reason to Stay in School: What Educators Can Do to Reduce Dropout Rates, Alice Presson and Gene Bottoms, 1992. Available from SREB, 592 Tenth Street, NW, Atlanta, GA 30318-5790, (404)875-9211.

Schools for the 21st Century: New Roles for Teachers and Principals, Dianne Wilkes, 1992. Available from NEFEC/SERVE, Box 8500, 3841 Reid Street, Palatka, FL 32177 (904)329-3800, $7.00.

Students At Risk: Problems and Solutions, Ben Brodinsky with Katherine Keough. An American Association of School Administrators (AASA) Critical Issues Report, available from AASA, 1801 North Moore Street, Arlington, VA 22209-9988 (703)528-0700.

Tech Prep and Applied Academics: Creating New Choices and Pathways for Students' Success, Winter, 1993, Vol. 74, No. 2. A Special Issue of *The Balance Sheet*. To order a copy, write to The Balance Sheet, 4770 Duke Drive, Mason, OH 45040, (513)398-1122.

Themes of Uncommonly Successful Teachers of At-risk Students, Kenneth Peterson, Betsy Bennet, and Douglas Sherman, July 1991. *Urban Education*, Vol. 26, No. 2, p. 176-194.

Vocational and Technical Education: Programs of Study and Support Services Guide, North Carolina Department of Public Instruction, 1992. Available from the Division of Vocational and Technical Education Services, Department of Public Instruction, 116 West Edenton Street, Raleigh, NC 27603-1712.

Vocational Education Journal. The following Special Reprints are available from the American Vocational Association:

Restructuring Education
Tech Prep
Workforce Education Reform

To request copies, contact AVA Reprints, 1410 King Street, Alexandria, VA 22314 (800)826-9972.

Vocational Education's Role in Dropout Prevention and Recovery: A Guide for Secondary Vocational Administrators, Teachers, and Counselors, Pat Flora, 1989. Available from the South Carolina State Department of Education, Office of Vocational Education, 1429 State Street, Columbia, SC 29201, (803)734-8410.

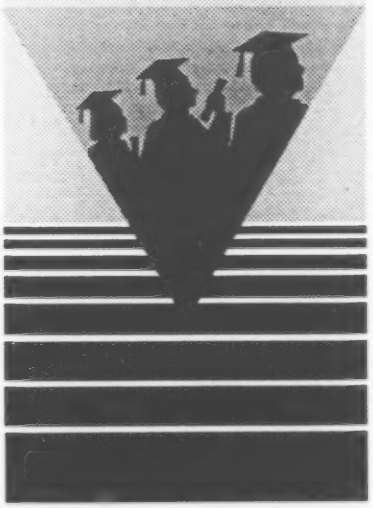
What Work Requires of Schools: A SCANS Report for America 2000, Secretary's Commission on Achieving Necessary Skills (SCANS), 1991. Available from U.S. Department of Labor, SCANS, 200 Constitution Avenue, NW, Washington, DC 20210.

What Works: When Teachers Integrate Vocational and Academic Education, B. June Schmidt, 1992. Available from the National Center for Research in Vocational Education, University of California at Berkeley, 1995 University Avenue, Suite 375, Berkeley, CA 94704, (800)762-4093.

Youth Apprenticeship, American Style: A Strategy for Expanding School and Career Opportunities, William Northdurft, 1990. Available from the Consortium on Youth Apprenticeship, c/o Jobs for the Future, 48 Grove Street, Somerville, MA 02144.

Youth Apprenticeship in America: Guidelines for Building an Effective System, James Rosenbaum, David Stern, Mary Agnes Hamilton, Stephen Hamilton, Sue Berryman, and Richard Kazis, 1992. Available from the William T. Grant Foundation Commission on Youth and America's Future, 1001 Connecticut Avenue, NW, Suite 301, Washington, DC 20036-5541.

APPENDICES



Appendix A

The Dropout Problem in the Southeast

The dropout problem can often be difficult to identify and measure. It can even be invisible, as individual students trickle out over the course of a school year. Exact figures on the number of students who are dropping out of school are elusive because dropout rates are defined and measured in many different ways. States do not agree on how to define a dropout, and tracking systems are not adequately designed to follow a student from ninth through twelfth grade, especially if that student moves to another district or state.

The National Center for Education Statistics reports dropouts in three ways:

Event Rates--measure the proportion of students who drop out in a single school year. In the U.S. in 1991, 4 percent of 15- to 24-year-olds in grades 10 to 12 dropped out of school (approximately 348,000 students).

Status Rates--measure the proportion of 16- 24-year-olds who have not completed high school and are not enrolled in school at one point in time, regardless of when they dropped out; status rates are much higher than event rates because they represent the cumulative impact of annual dropout rates over a number of years. In 1991, 12.5 percent (approximately 3.9 million) of 16- to 24-year-olds had not completed high school and were not currently enrolled in school.

Cohort Rates--measure what happens to a single group (or grade) of students over a period of time. About 6.8 percent of the eighth-grade cohort of 1988 dropped out of school between eighth and tenth grade.

Status dropout rates for 16- to 19-year-olds are also reported for each state. According to Kaufman, McMillen, and Bradley (1992), those in the Southeast are among the highest in the nation:

	Status Dropout Rate for 16- to 19-Year-Olds
Alabama	12.9%
Florida	14.2%
Georgia	14.1%
Mississippi	11.7%
North Carolina	13.2%
South Carolina	11.9%

Hodgkinson (1993) provides another perspective on the dropout problem by calculating the percent of the total population over age 25 that had completed high school as of 1990:

	Percent of Population Over Age 25 That Has Completed High School
Alabama	63.0%
Florida	77.9%
Georgia	71.0%
Mississippi	68.0%
North Carolina	71.3%
South Carolina	69.8%

To help clarify dropout rate information, the Southern Regional Education Board (SREB) recommends that a state's information system report dropout rates by race/ethnicity, gender, grade level, age, number of grades failed, GPA, and achievement test scores. They also support the work of the National Center for Education Statistics, which has proposed a uniform method of data collection on dropouts that includes four categories:

1. traditional high school diploma recipients;
2. non-traditional high school diploma recipients (who complete Carnegie units and other requirements through an alternative program);
3. other certificate/credential recipients (who graduate without meeting traditional requirements, such as in special education programs); and
4. General Education Development (GED) credential recipients (Clements, 1990).

The National Center for Education Statistics has proposed a uniform definition for a dropout. A dropout in an individual who

1. was enrolled in school at some time during the previous school year;
2. was not enrolled at the beginning of the current school year;
3. has not graduated from high school or an approved education program; and
4. does not meet any of the following exclusionary conditions:
   - transfer to another school or approved educational program,
   - temporary absence due to suspension or illness, or
   - permanent absence due to death (Bottoms & Presson, 1991, p. 8).

According to SREB, all six states in the SERVE region can or will soon be able to report dropout statistics based on these guidelines.

No matter how one measures dropout rates, however, too many students are leaving school without completing a high school education. Schools need to be aware of the reasons that students leave school and characteristics associated with dropping out in order to design appropriate educational responses. Researchers (Orr, 1987; Smith, 1990; Wehlage & Rutter, 1986) list a variety of factors that seem to be associated with dropping out of high school:

Demographic factors include a low-income family, parents who never completed high school, and a single-parent home.

Family support factors include little encouragement from parents to stay in school, little parental supervision, and few study aids at home.

Personal and social/psychological factors include working an excessive number of hours per week, pregnancy and/or marriage, trouble with the law, low self-concept, and low internal locus of control.

Education-related factors include poor academic performance, poor basic skills, feelings of alienation from school, frequent absences, repetition of one or more grades, discipline problems, suspensions, and little or no participation in extra-curricular activities.

Researchers emphasize that while the presence of such factors places a student at risk of dropping out, they should not be interpreted as the causes of dropping out. To illustrate, in 1984, 73 percent of students who had repeated a grade and 78 percent of students from low-income families successfully completed high school (Orr, 1987). It is also important to note that while dropout rates are higher for Hispanics and African-Americans than for Asians and whites (SREB, 1992), controlling for family background (parents' education, income, etc.) eliminates significant differences in dropout rates among races (Wehlage & Rutter, 1986).

A strong predictor of dropping out is failure of one or more grades levels. Bottoms and Presson (1991) have determined that

> each year that a student fails to advance to the next grade level increases his/her chance of dropping out by more than 40 percent. Given this, a student who has fallen two grade levels behind peers before going to high school is predicted to drop out, even if no other risk factors exist. (pp. 12-13)

Like grade repetition, many of the factors associated with dropping out may be produced by experiences in school and can be addressed though changes in the policies and practices of the school. Potential dropouts often report finding school boring and irrelevant, and, when students themselves are asked why they are dropping out, most answers are school-related: they do not like school, have poor grades, or cannot get along with their teachers. Other reasons include getting a job, getting married, or becoming pregnant (Smith, 1990).

Appendix B

Two Proposed Schedules for the Copernican Plan

<table>
<tr><th></th><th>Schedule A</th><th>Schedule B</th></tr>
<tr><td>7:46</td><td rowspan="4">Macroclass (226 minutes)
for 30 days</td><td rowspan="2">Macroclass I (110 minutes)
for 60 days</td></tr>
<tr><td>9:36</td></tr>
<tr><td>9:42</td><td>Passing (6 minutes)</td></tr>
<tr><td>11:32</td><td>Macroclass II (110 minutes)
for 60 days</td></tr>
<tr><td>11:38</td><td colspan="2">Passing (6 minutes)</td></tr>
<tr><td>12: 13</td><td>First Lunch (35 minutes)</td><td>Seminar I/Music/Phys. Ed. (70 minutes)</td></tr>
<tr><td>12:48</td><td>Seminar I/Music/Phys. Ed.
(70 minutes)</td><td>Second Lunch (35 minutes)</td></tr>
<tr><td></td><td colspan="2">Passing (6 minutes)</td></tr>
<tr><td>1:29</td><td colspan="2" rowspan="2">Preparation/Help/Study/Phys. Ed./Music (70 minutes)</td></tr>
<tr><td>2:39</td></tr>
<tr><td></td><td colspan="2">Departure (6 minutes)</td></tr>
<tr><td>2:45</td><td colspan="2" rowspan="2">Activities/Sports (135 minutes)</td></tr>
<tr><td>5:00</td></tr>
</table>

Source: Carroll, 1989.

Appendix C

Parent's/Guardian's Agreement for Student's Participation in MAP

I, _____, agree with and support the decision to place my child in the MAP program. I understand that he/she will be expected to participate in all activities conducted as part of the MAP project at Mauldin High School until he or she graduates. These activities include

1. all MAP classes and activities offered at Mauldin High School during the 1992-93 school year and
2. the 1993 Summer enrichment program.

While my child participates in the MAP project, I will encourage him/her to

1. attend class and school regularly,
2. get to class and school on time,
3. complete all assigned work,
4. do his/her very best academically, and
5. behave in a cooperative and responsible manner by having a positive attitude.

I understand that my child may be eligible for an early graduation from Mauldin High School. I also understand that my child may be removed from the MAP project if he/she fails to honor any of his/her commitments to the program. I understand that my child will be involved in regular counseling and that as a parent, I will attend a monthly parent meeting.

I am aware that MAP is part of an experimental program and that information will be collected about participating students. The types of information to be collected include (but are not limited to) test scores, grades, attendance records, and disciplinary files. By signing below, I authorize Mauldin High School to release such individually identifiable information about my child to researchers.

Parent's/Guardian's Signature _____ Date _____

Teacher's Signature _____ Date _____

Principal's or Designee's Signature _____ Date _____

Student's Signature _____ Date _____

MAP Counselor's Signature _____ Date _____

Source: Mauldin Accelerated Program, 1992.

Student's Agreement for Participation in MAP

By signing this agreement, I_____, commit myself to participate in all activities conducted as part of the MAP project at Mauldin High School. I understand that I may be eligible for an early graduation from Mauldin High School if I meet all the terms of this agreement. I also understand that I may be removed from the MAP project if I fail to honor any of the commitments I have made.

The activities in which I am expected to participate include

1. all MAP classes, counseling programs, and other activities offered at Mauldin High School during the 1992-93 school year and

2. the 1993 summer enrichment program.

While participating in the MAP project, I will

1. attend class and school regularly,
2. get to class and school on time,
3. complete all assigned work,
4. do my very best academically, and
5. behave in a cooperative and responsible manner by having a positive attitude.

I recognize that MAP staff are ready and willing to help me with any problems or concerns I may have. I will meet with them on a regular basis to review my progress in the MAP project and discuss any other issues of concern to me.

Student's Signature _____ Date _____

MAP Teacher's Signature _____ Date _____

Principal's or Designee's signature _____ Date _____

MAP Counselor's Signature _____ Date _____

Source: Mauldin Accelerated Program, 1992.

Appendix D

Forest Park High School
College Preparatory Seal of Endorsement

ACADEMIC REQUIREMENTS			
9	**10**	**11**	**12**
Language Arts	Language Arts	Language Arts	Language Arts
Pre-Algebra - Algebra - Geometry	Algebra - Geometry - Algebra II	Geometry - Algebra II - Trigonometry	Algebra II - Trigonometry - Calculus - Transitions to College Math
Physical Science - Biology	Biology - Chemistry I	Chemistry I - Physics - Physiology - A.P. Chemistry	Physics - Physiology -
Geography	World History	American History	Government - Citizenship/ Economics
Health/P.E.	Foreign Language	Foreign Language	Foreign Language - Electives
AFJROTC/ Computers/ Fine Arts/ Vocational Ed.	Electives	Electives	Electives

ACADEMIC AND TECHNICAL REQUIREMENTS			
9	**10**	**11**	**12**
Language Arts	Language Arts	Technical English I	Technical English II
Pre-Algebra - Algebra	Technical Math I - Algebra - Geometry	Technical Math II - Geometry - Algebra II	Electives (Math Preferred)
Physical Science - Biology	Technical Biology/ Chemistry I - Chemistry	Technical Biology/ Chemistry II - Technical Physics I - Physiology	Electives (Science Preferred)
Geography	World History	American History	Citizenship/Economics
Health/P.E.	Technical Elective	Technical Elective	Technical Elective - Senior Plan
AFJROTC/ Computers/ Fine Arts/ Vocational	Technical Elective	Technical Elective	Technical Elective - Senior Plan

ACADEMIC AND TECHNICAL REQUIREMENTS			
9	**10**	**11**	**12**
Language Arts	Language Arts	Language Arts	Language Arts
Pre-Algebra - Algebra - Geometry	Algebra - Geometry - Algebra II	Geometry - Algebra II - Trigonometry	Math Electives - Technical Electives
Physical Science - Biology	Biology - Chemistry I	Chemistry I - Physiology - A. P. Chemistry	Science Electives - Technical Electives
Geography	World History	American History	Government - Citizenship/ Economics
Health/P.E.	Foreign Language	Foreign Language	Technical Elective
AFJROTC/ Computers/ Fine Arts/ Vocational Ed.	Technical Elective	Technical Elective	Technical Elective

Source: Forest Park (Ga.) High School, 1992

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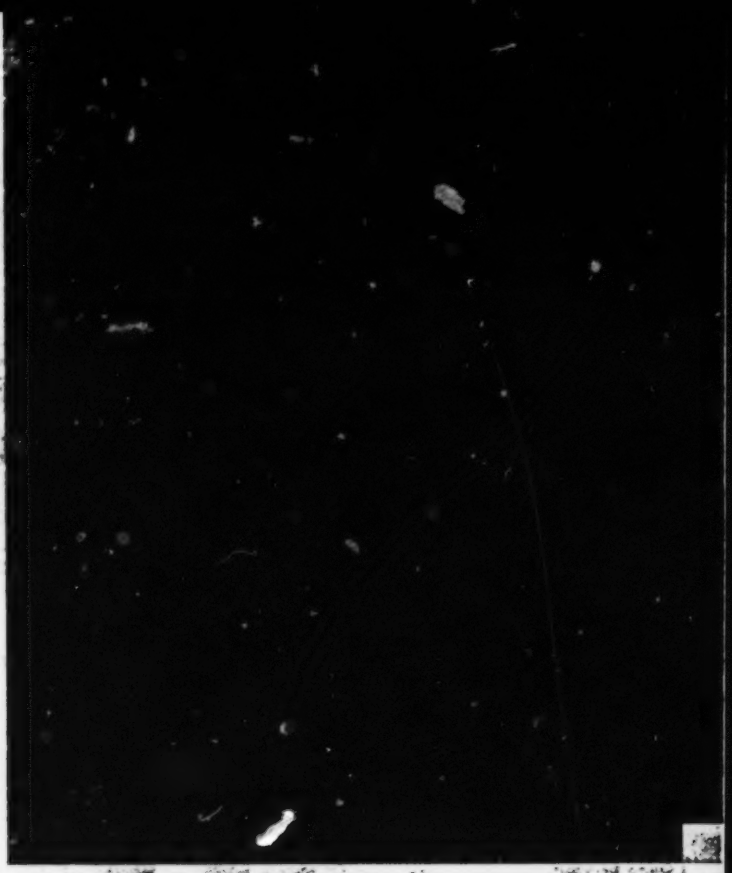

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